Director's Report

Volume 26, Issue 1
January/February 2017

ASMFC

FISHERIES focus

Vision: Sustainably Managing Atlantic Coastal Fisheries

INSIDE THIS ISSUE

American Lobster Board Approves Draft Addendum XXV for Public Comment to Address Southern New England Stock Declines

The American Lobster Management Board has released Draft Addendum XXV to Amendment 3 to the Interstate Fishery Management Plan for American Lobster for public comment. The Draft Addendum seeks to address the depleted condition of the Southern New England (SNE) stock while preserving a functional portion of the SNE lobster fishery. The document presents a suite of management measures to increase egg production and lower fishing mortality through a combination of management tools including gauge size changes, season closures, and trap reductions.

The Draft Addendum responds to the results of the 2015 American Lobster Benchmark Stock Assessment which found the SNE stock is severely depleted and experiencing recruitment failure. Declines in population abundance were most pronounced in the inshore portion of the stock where environmental conditions have remained unfavorable to lobster since the late 1990s. These stock declines are largely in response to adverse environmental conditions, including increasing water temperatures over the last 15 years, combined with continued fishing mortality.

Draft Addendum XXV focuses on increasing egg production so that, if environmental conditions become favorable, the SNE stock can benefit from a strong recruitment year. The Draft Addendum includes six issues. The first proposes four targets to increase egg production, ranging from 20% to 60%, with an additional option for status quo. The second issue seeks input on proposed management tools to increase egg production and whether these tools should be used independently or in conjunction with one another. The third issue addresses the effects of proposed measures on the recreational fishery. The fourth issue explores the implementation of season closures and potential impacts to the Jonah crab fishery. The fifth issue examines whether management measures should be uniform across Lobster Conservation Management Areas (LCMA) in SNE. The sixth issue asks how management measures should be applied to the offshore waters of LCMA 3, which spans both the Gulf of Maine/Georges Bank and SNE stock units.

Fishermen and interested stakeholders are encouraged to provide input on the Draft Addendum either by attending state public hearings or providing written comment. The Draft Addendum can be obtained at http://www.asmfc.org/files/PublicInput/AmLobsterDraftAddendumXXV_PublicComment.pdf. Public comment will be accepted until 5 PM (EST) on April 7, 2017 and should be forwarded to Megan Ware, Fishery Management Plan Coordinator, 1050 N. Highland St, Suite 200 A-N, Arlington, VA 22201; 703.842.0741 (FAX) or at mware@asmfc.org (Subject line: Draft Addendum XXV). The Board will review submitted public comment and consider action on the Addendum at the Commission's Spring Meeting in May 2017.

Upcoming Meetings

The Atlantic States Marine Fisheries Commission was formed by the 15 Atlantic coastal states in 1942 for the promotion and protection of coastal fishery resources. The Commission serves as the deliberative body of the Atlantic coastal states, coordinating the conservation and management of nearshore fishery resources, including marine, shell and diadromous species. The fifteen member states of the Commission are: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida.

March 6-10
South Atlantic Fishery Management Council, Westin Jekyll Island, 110 Ocean Way, Jekyll Island, GA

March 14-16
MREP Workshop on Fisheries Science and Management for the Recreational Angler, Crowne Plaza, Warwick, RI

March 16 (10 AM - 12:30 PM)
Northern Shrimp Section, Westin Portland Harborview, 157 High Street, Portland, ME.

March 16 (10 - 11:30 AM)
Tautog Technical Committee Conference Call; visit http://www.asmfc.org/calendar/ for more details.

March 17 (9 - 11 AM)
Law Enforcement Committee Conference Call; visit http://www.asmfc.org/calendar/ for more details.

March 23 (10 AM - Noon)
Shad and River Herring Technical Committee Conference Call; visit http://www.asmfc.org/calendar/ for more details.

March 29 & 30
Tautog Technical Committee, ASMFC Offices, 1050 N. Highland Street, Suite 200 A-N, Arlington, VA

April 5 & 6
Quality Assurance/Quality Control Fish Ageing Workshop, FL FWCC Fish and Wildlife Research Institute, 100 8th Ave SE, St. Petersburg, FL

April 5-7
Northern Shrimp Data Workshop, Westin Portland Harborview, 157 High Street, Portland, ME

April 11-13
Mid-Atlantic Fishery Management Council, Icona Golden Inn, 7849 Dune Drive, Avalon, NJ

April 18 -20
New England Fishery Management Council, Hilton Hotel, Mystic, CT

May 8-11
ASMFC Spring Meeting, The Westin Alexandria, 400 Courthouse Square, Alexandria, VA

June 6-8
Mid-Atlantic Fishery Management Council, The Main, 100 Main Street, Norfolk, VA

June 12-16
South Atlantic Fishery Management Council, Sawgrass Marriott, 1000 PGA Tour Boulevard, Ponte Vedra Beach, FL

August 1-3
ASMFC 2017 Summer Meeting, The Westin Alexandria, 400 Courthouse Square, Alexandria, VA

August 8-10
Mid-Atlantic Fishery Management Council, Courtyard Mariott, 21 North Juniper Street, Philadelphia, PA

The Challenges of Joint and Complementary Recreational Fisheries Management

The Commission coordinates the management of 27 Atlantic coastal fisheries and shares in the management of 10 of these species with the New England, Mid-Atlantic and South Atlantic Fishery Management Councils and NOAA Fisheries. Clearly, there are significant benefits to a shared management approach for fisheries that occur in both state and federal waters. Chief among them is the ability to capitalize on the collective staff, equipment and fiscal resources of the states and our federal partners to forward the common goal of sustainably managing fisheries throughout their range.

While joint management has its benefits, it has also resulted in a tense balance of federal mandates and the unique needs of the individual states. For fisheries with significant recreational harvests, the process is further challenged by the timeliness and resolution of recreational data. Three species in particular – black sea bass, summer flounder and cobia – exemplify the challenges of state/federal management of recreational fisheries.

The Commission recently committed to developing a Cobia FMP to complement that of the South Atlantic Council, while summer flounder and black sea bass are already jointly managed by the Commission and the Mid-Atlantic Council. All three species have been in the news and at the forefront of recreational angler discussions over the past few months. For many fishermen, the science does not match what folks are seeing on the water, leading them to question why management measures are so restrictive. We are keenly aware of these criticisms and the frustrations of the fishing public, which often are a symptom of the difficulty of balancing states' needs with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Compounding the problem are recreational data limitations in terms of both timeliness and our ability to precisely estimate the impacts of recreational management measures on harvest by state or by sector. This does not mean the recreational data are not good data. However, it does highlight the limitation of using the current data resolution to manage recreational fisheries at a fine scale.

Like me, most will agree that the Magnuson-Stevens Act has successfully rebuilt many stocks. However, the law provides limited flexibility, especially with respect to annual catch limits and accountability measures. While Commission FMPs have flexibility to adjust specifications to reflect differences in life history, address limitations in catch and stock estimates and to ease economic hardship, federal FMPs are limited in their ability to set regional or state-specific measures. For example under current federal management of cobia, the South Atlantic Council must implement one set of coastwide specifications which does not provide equitable access to all parts of the coast. This inflexibility has resulted in-season closures before the fish migrate northward later in the season causing many anglers to miss out. For black sea bass, anglers are seeing more of these fish than they can remember, and the 2016 benchmark stock assessment indicates the stock is estimated to be 2.3 times the spawning stock biomass target. However, due to estimated high catch rates, recreational fishing opportunities in 2017 will not be increased for black sea bass.

At the same time, managing recreational fisheries through the use of state-specific management measures presents its own set of challenges. Both the Commission and the Councils develop recreational measures and determine final harvest numbers using estimates generated by the Marine Recreational Information Program (MRIP). MRIP estimates are most precise on a coastwide basis. While information is available at the regional and state-level, it becomes less precise at finer spatial scales. This leaves us with a catch-22. History has shown us that coastwide recreational management approach does not work because it does not account for species' unique spatial and temporal characteristics (e.g., species are available along the coast at various abundances and sizes, and differing seasons), which lead to inequities between the states. Conversely, the use of state-specific measures under the Magnuson-Stevens Act mandates of annual catch limits and accountability measures has led to a situation where we are constantly in the process of either reacting to overages from the year before or liberalizing regulations to allow for more fish to be harvested. Clearly, we need to find a new approach to jointly managing recreational fisheries. That approach could include averaging data from multiple years, implementing management measures over multiple years or exploring management programs linked to fishing mortality rates. For example, we could set recreational measures for 3-5 years with the recognition that in some years we may exceed the recreational harvest limit while in other years we may fall below it, but over the long-term the highs and lows even themselves out. There are other alternatives to consider but obviously we need a new approach to effectively manage these and other fisheries while reducing frustrations of both fishery managers and the fishing community.

Moving forward, the states and the Councils will need to continue to work to match the management program with the timeliness and resolution of the available data. This will take considerable work and possibly changes to the Magnuson-Stevens Act to significantly improve the fisheries for joint and complementary species. New management plans, which are currently under development for summer flounder and cobia, may offer us a unique opportunity to find the right balance between meeting states' needs and federal mandates while ensuring for the long-term sustainability of both species.

Stock Assessment Finds Resource Relatively Stable with Overfishing Not Occurring

Introduction

Attempts to regulate the Atlantic coast red drum fishery date back to the Commission's first Annual Meeting in 1942. At the meeting, a Delaware Commissioner urged that red drum be made a sport fish or be protected by adequate size limits and daily catch limits, and that it's use as fertilizer be prohibited. While this request and later management recommendations were unsuccessful in preventing the overexploitation of red drum, the 2017 benchmark stock assessment indicates that interstate management has made significant strides in improving the population's condition since 1990. At that time, the stability of the stock was uncertain, with an exploitation level that was jeopardizing future recruitment. Through the implementation of more stringent regulations in the 1990s and 2000s, the stock is no longer subject to overfishing and sufficient numbers of young fish are surviving to become breeding adults.

Despite this achievement, managers still face challenges with red drum. Due to data deficiencies regarding the adult population, it cannot be determined whether the stock is overfished or rebuilt. This is because there is limited information on fish older than age four as a result of the fish's life history and regulations that restrict the harvest of fish larger than 27 inches. Due to these unknowns, managers are holding the course on red drum management for the time being, while continuing research efforts seek to provide missing data for future stock assessments.

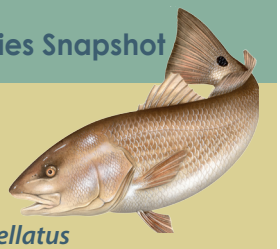
Life History

The historic distribution of red drum on the Atlantic coast is from Massachusetts through Florida, though few fish have been reported north of the Chesapeake Bay in recent years. Juveniles are most abundant in estuarine waters and inlets, while fish older than age four inhabit deeper waters. The adult fish migrate seasonally, moving offshore or south in the winter and inshore or north in the spring. Spawning occurs at night in the nearshore waters during the summer and fall. Prolific spawners, large females may produce up to two million eggs in a season. Eggs hatch within 24 to 36 hours of being spawned and the larvae are carried by wind and tidal action into shallow, low salinity estuarine nursery areas. Juveniles and sub-adults stay in estuarine areas, feeding on zooplankton and invertebrates such as small crabs and shrimp. Gradually, red drum expand their diet to include fish and larger invertebrates. Depending on the area, males mature between ages one and four (20-28 inches in length), while females mature between ages three and six (31-36 inches in length). Red drum may reach 60 years of age and 60 inches in length (corresponding to greater than 90 pounds in weight).

Commercial & Recreational Fisheries

Atlantic coast commercial landings have been reported as early as the 1880s. Since 1960, landings have fluctuated around 240,000 pounds, with a high of 627,800 pounds in 1950 and a low of 54,748 pounds in 2004. No directed commercial fishery currently exists for Atlantic red drum. Fish are landed as bycatch in several states, predominantly North Carolina where gillnets take the vast majority of the state's harvest. Landings in North Carolina are restricted by an annual quota and low daily possession limit. Commercial harvest and sale in New Jersey through Virginia is restricted to recreational limits, while Georgia, South Carolina and Florida prohibit commercial harvest. A harvest moratorium and Presidential Executive Order, enacted in 2007, prevents any harvest or sale of red drum from federal waters.

Species Snapshot



Red Drum
Sciaenops ocellatus

Management Unit: New Jersey to Florida

Interesting Facts

- The name is derived from their color and the fact that during spawning time males produce a drum-like noise by vibrating a muscle in their swim bladder.
- Due to their unusual growth pattern, a 36" red drum may be anywhere from 6 - 50 years old.
- Red drum have been successfully reared in hatcheries and released into South Carolina, Georgia and Florida estuaries in stock enhancement programs.
- Some scientists believe the purpose of the spot(s) near the tail is to mimic an eye. This fools predators into attacking the wrong end of the fish and gives the red drum a chance to escape.

Largest Recorded: 94 lbs. and 2 oz., Hatteras Island, North Carolina

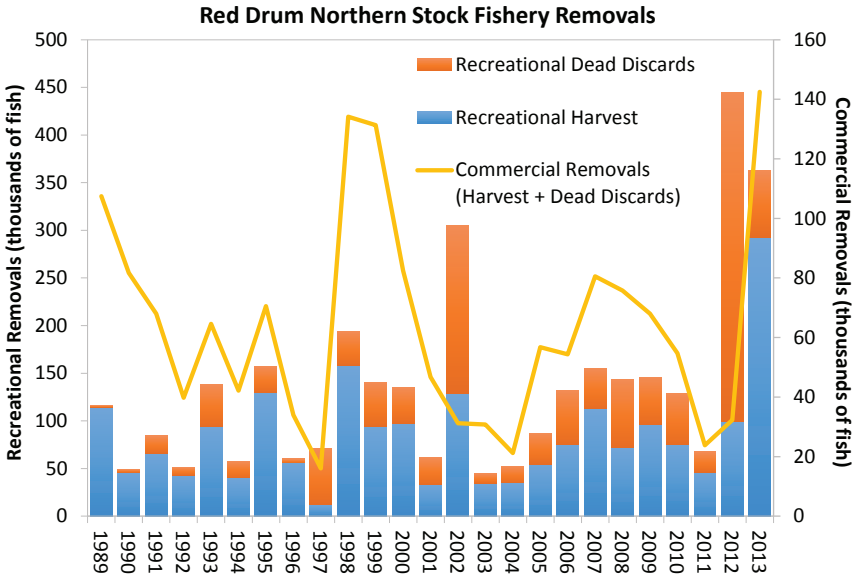
Oldest Recorded: 62 years old

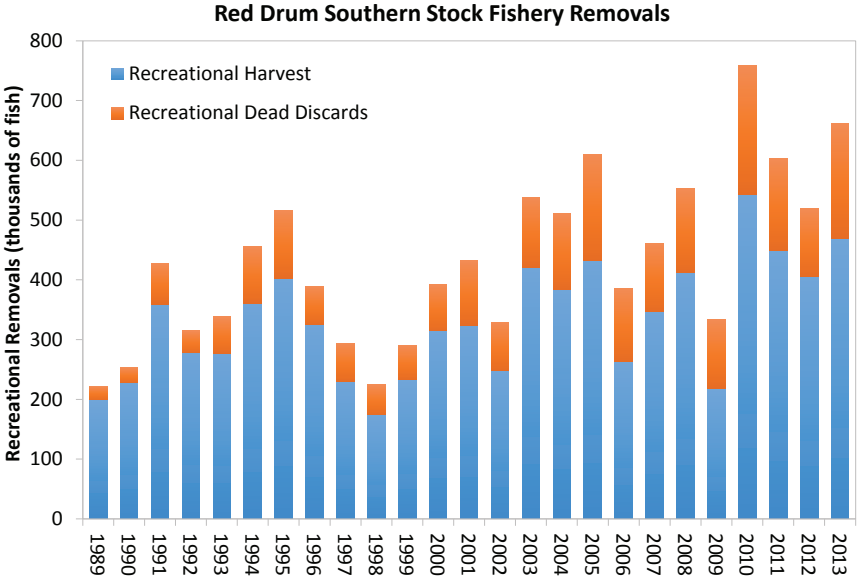
Age at Maturity:
Females - Between the ages of one and four (20-28 inches in length)
Males - Between the ages of three and six (31-36 inches in length)

Stock Status: Overfishing not occurring

Photo (c) Malcom Rhodes

The recreational fishery is a nearshore fishery, targeting small "puppy drum" in shallow estuarine waters and large trophy fish along the Mid- and South Atlantic barrier islands. Harvest is restricted by minimum and maximum size limits and a daily trip limit. Due to strict commercial measures, the establishment of gamefish status in some states, and the great popularity of red drum by anglers, recreational fishing has accounted for over 87% of all Atlantic coast red drum landings (by pounds) since 1982. Anglers from Florida through Virginia take most, if not all, of the coastwide annual recreational harvests. Annual harvests have historically ranged between 300,000 and 550,000 fish per year, with the exception of some larger harvests in the mid-1980s. However, from 2010-2015, recreational harvests have exceeded 600,000 fish in three years (2010, 2013, and 2014). Meanwhile, recreational catch (harvest and releases) has increased over time, meaning that the percentage of fish that are caught and released has increased from about 4% in 1982 to more than 83% in 2015. Based on studies of mortality rates following release from gears common to the red drum recreational fishery, the most recent assessment assumed that 8% of fish released by the recreational fishery die.





Stock Status

The 2017 Red Drum Stock Assessment and Peer Review Report indicate overfishing is not occurring for red drum in either the northern (North Carolina-New Jersey) or southern (South Carolina-Florida) stocks. The assessment was unable to determine an overfished/not overfished status because population abundance could not be reliably estimated due to limited data for the older fish (ages 4+) that are not typically harvested due to the current fishery measures (slot-limits).

The assessment estimates annual static spawning potential ratios (sSPR) measured against previously established reference points for red drum. Overfishing is occurring if the three-year average sSPR is less than a threshold of 30%. sSPR is a measure of spawning stock biomass survival rates when fished at the current year's fishing mortality rate (to limit impacts of extremely productive or unproductive individual years, this assessment used 3-year averages rather than single years) relative to the spawning stock biomass survival rates if no fishing mortality was occurring. In 2013 (the last year for which data were available), the three-year (2011-2013) average sSPR was 43.8% for the northern stock and 53.5% for the southern stock, both above the target and threshold values.

Age-1 recruitment, or the number of fish spawned the previous fall, has fluctuated around averages of 476,579 and 1.57 million fish in the northern and southern stocks, respectively. In more recent years, the largest recruitment occurred in 2012 for the northern stock and 2010 for the southern stock.

Atlantic Coastal Management

For close to two decades, red drum were jointly managed by the Atlantic States Marine Fisheries Commission (state waters, 0-3 miles from shore) and the South Atlantic Fishery Management Council (federal waters, 3-200 miles from shore). The first interstate plan was

continued, see RED DRUM on page 8

Jonah Crab Addendum II Establishes Coastwide Standard for Claw Harvest

The American Lobster Management Board approved Addendum II to the Jonah Crab Fishery Management Plan (FMP). The Addendum establishes a coastwide standard for claw harvest and a definition of bycatch, based on a percent composition of catch, in order to minimize the expansion of a small-scale fishery under the bycatch allowance.

The Addendum responds to concerns regarding the equity of the claw provision established in the 2015 FMP, which instituted a whole crab fishery with the exception of fishermen from New Jersey, Delaware, Maryland, and Virginia who have a history of claw landings prior to June 2, 2015. Following approval of the FMP, claw fishermen from New York and Maine were identified and, while these fishermen had a history of claw landings, they were required to land whole crabs under the provisions of the FMP. Addendum II permits claw harvest coastwide. Specifically, the Addendum allows Jonah crab fishermen to detach and harvest claws at sea, with a required minimum claw length of 2.75" if the volume of claws landed is greater than five gallons. Claw landings less than five gallons do not have to meet the minimum claw length standard. Fishermen may also harvest whole crabs which meet the 4.75" minimum carapace width.

Addendum II also establishes a definition of bycatch in the Jonah crab fishery, whereby the total pounds of Jonah crabs caught as bycatch must weigh less than the total amount of the targeted species at all times during a fishing trip. The intent of this definition is to address concerns regarding the expansion of a small-scale fishery under the bycatch limit. Prior to this Addendum, a non-trap or non-lobster trap fisherman could land 1,000 crabs as bycatch but was not required to have any other species of catch on board. Through Addendum II, fishermen harvesting under the bycatch limit must have another species on board of greater weight than landed Jonah crabs.

The Addendum is available at http://www.asmfc.org/uploads/file/589501bcJonahCrabAddendumII_Jan2017.pdf. For more information, please contact Megan Ware, Fishery Management Plan Coordinator, at mware@asmfc.org or 703.842.0740.

Summer Flounder Regional Management Approved for 2017 Recreational Fisheries

The Summer Flounder, Scup and Black Sea Bass Management Board approved Addendum XXVIII to the Summer Flounder and Black Sea Bass Fishery Management Plan, maintaining regional management for the 2017 recreational summer flounder fishery. Specifically, the Addendum requires a one-inch increase in size limit and reduced possession limits to stay within the 2017 recreational harvest limit (RHL). These measures are broadly applied across all states to reduce harvest and provide for more coastwide consistency in regulations. The summer flounder regions, which are continued from 2016, are: Massachusetts; Rhode Island; Connecticut through New York; New Jersey; Delaware through Virginia; and North Carolina.

In August 2016, the Board and Mid-Atlantic Fishery Management Council approved an approximate 30% reduction in catch limits for both the commercial and recreational fisheries in response to the 2016 stock assessment update, which indicated the resource is experiencing overfishing but is not overfished. In order to not exceed the reduced 2017 RHL, a 41% reduction relative to the 2016 preliminary harvest estimates is needed. To achieve the reduction, the Addendum implements a one-inch increase in size limit from 2016 measures for all regions with the exception of North Carolina. Additionally, all regions are required to constrain their possession limits to 4 fish or less and maintain 2016 season lengths. The approved management program also allows for the continuation of the Delaware Bay specific management measures for New Jersey anglers west of the COLREGS line. In 2016, New Jersey had separate management measures for anglers east and west of the Delaware Bay COLREGs line.

"The Board's decision took into account the findings of the 2015 and 2016 stock assessment updates, both of which found summer flounder abundance is declining and is experiencing overfishing; the need to take harvest reductions to end overfishing immediately through our joint management process with the Mid-Atlantic Council and as prescribed by the Magnuson-Stevens Act; and with the recognition that the confidence intervals around the harvest estimates limit our ability to precisely project the impacts of differing management measures," stated Mike Luisi, Board Chair. "By our action, we struck a balance between the need to reduce harvest, while taking into account the socioeconomic impacts to our stakeholders."

In its report to the Board, the Technical Committee (TC) supported the 2013 summer flounder benchmark stock assessment and its updates through 2016 as the best available science. Further, it agreed with the findings of the recent stock assessments, indicating the resource is declining in abundance and that associated management changes are needed to address this issue; in this case, a reduction in the RHL. The TC recommended uniform adjustments from 2016 management measures (as were approved in the Addendum) to reduce harvest and fishing mortality in an equitable manner.

Once the states have selected final management measures, the Commission will submit a letter to NOAA Fisheries detailing how the measures will constrain fishing to the 2017 RHL. The Commission annually submits this letter as part of the conservation equivalency process that allows for federal coastwide management measures to be waived and for state management measures to be applied in both state and federal waters.

Addendum XXVIII is available at http://www.asmfc.org/uploads/file/58b5cf80SummerFlounderAddendumXXVIII_Feb2017.pdf. For more information, please contact Kirby Rootes-Murdy, Senior FMP Coordinator, at krootes-murdy@asmfc.org.

continued, see FISHERY MANAGEMENT ACTIONS on page 7

FISHERY MANAGEMENT ACTIONS continued from page 6

ASMFC & MAFMC Set Black Sea Bass Specifications for 2017 and 2018
Benchmark Assessment Finds Resource Not Overfished & Overfishing Not Occurring

The Commission and the Mid-Atlantic Fishery Management Council (Council) approved revised specifications for the 2017 black sea bass fishing year as well as specifications for the 2018 fishing year for the northern black sea bass stock (Cape Hatteras, North Carolina to the US-Canadian border). The revised specifications are based on the results of the 2016 benchmark stock assessment, which found the stock is not overfished and overfishing is not occurring. The approved limits are consistent with the recommendations of the Council's Science and Statistical Committee. The Commission's actions are final and apply to state waters (0-3 miles from shore). The Council will forward its recommendations for federal waters (3 – 200 miles from shore) to NOAA Fisheries Greater Atlantic Regional Fisheries Administrator for final approval.

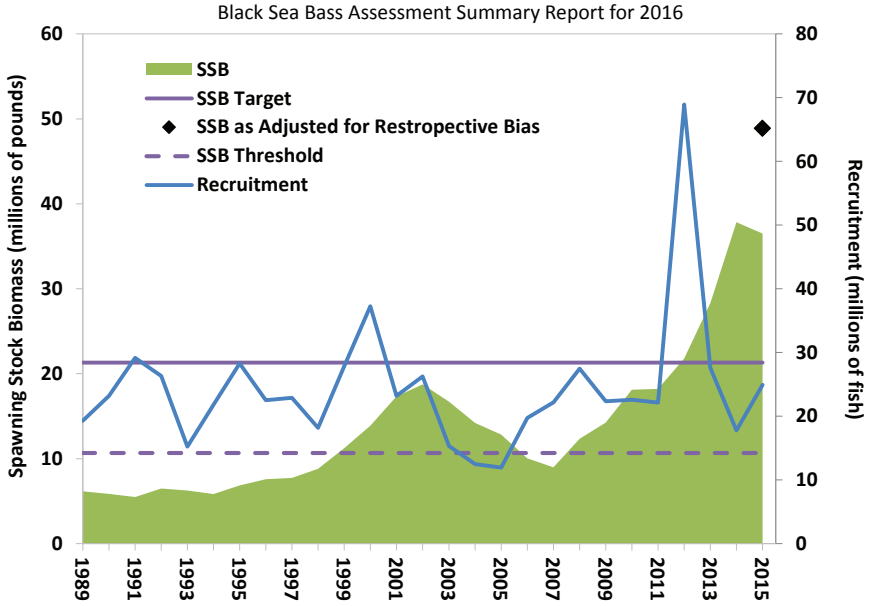
The accompanying table summarizes commercial quotas and recreational harvest limits (RHL) for black sea bass in 2016, 2017 and 2018. Please note specifications for 2018 may be adjusted based on changes in the fishery or new scientific information.

Species	Year	Commercial Quota (millions of pounds)	Commercial Minimum Fish Size (TL)	Commercial Mesh Size	Recreational Harvest Limit (millions of pounds)
Black Sea Bass	2016	2.70	11"	4.5"	2.82
	2017	4.12	11"	4.5"	4.29
	2018	3.52	11"	4.5"	3.66

In considering 2017 recreational management measures, the Commission and Council maintained status quo measures in federal waters and in state waters from Delaware to North Carolina. These include a 12.5 inch TL minimum size, 15 fish possession limit, and open seasons from May 15 – September 21 and October 22 – December 31 (note: measures for federal waters are not final until approved by NOAA). Northern region states (Massachusetts through New Jersey) have the flexibility to continue 2016 management measures or develop new measures that will collectively constrain harvest to the 2017 RHL. Recognizing the favorable stock condition and the difficulty of precisely projecting the impacts of recreational management measures on overall harvest, the Commission and Council maintained status quo measures for 2017. Preliminary 2016 recreational harvest is estimated at 4.67 million pounds, roughly 380,000 pounds above the 2017 RHL. As additional 2016 harvest estimates become available, the Commission may review these data and consider the potential impacts to achieving the 2017 RHL.

For the first time, the black sea bass stock was modeled as two separate sub-units divided at approximately the Hudson Canyon. For modeling purposes, the data was divided into sub-units but the assessment and peer review noted that the sub-units are not separate stocks but comprise one single stock. As a result, the assessment combined the information from both sub-units to estimate stock-wide abundance and fishing mortality (F) as well as help minimize the effect of retrospective bias in the assessment (which can either overestimate spawning stock biomass and underestimate F, as seen in the southern sub-unit, or underestimate spawning stock biomass and overestimate F, as seen in the northern sub-unit). Spawning stock biomass (SSB) and F estimates for 2015 were adjusted for the retrospective bias (see accompanying graphs). The assessment used both fishery-dependent data (recreational catch and commercial landings/discards) and fishery-independent data from the Northeast Fisheries Science Center Winter and Spring Surveys, the Northeast

Black Sea Bass Spawning Stock Biomass and Recruitment
Source: 62nd Northeast Regional Stock Assessment Workshop
Black Sea Bass Assessment Summary Report for 2016

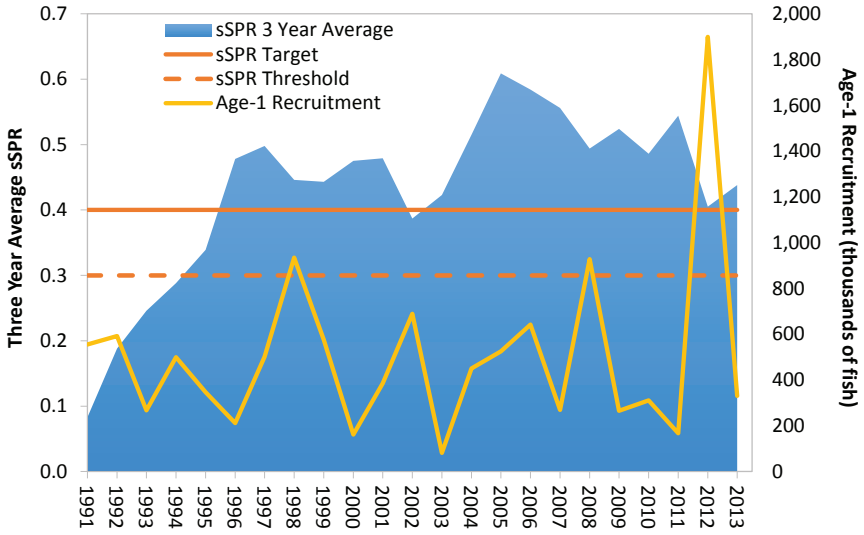


continued, see FISHERY MANAGEMENT ACTIONS on page 11

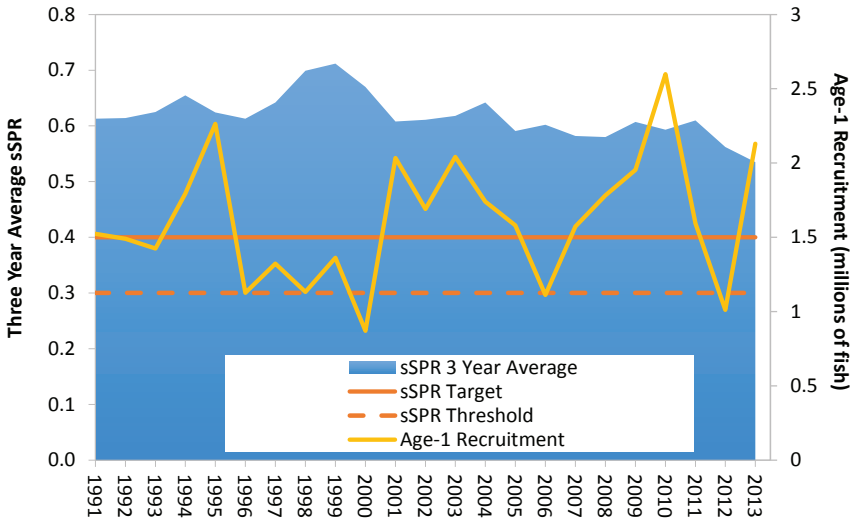
RED DRUM continued from page 5

developed in 1984. In 1990, the Council's plan closed federal waters to red drum harvest, and a 1998 amendment revised definitions for optimum yield and overfishing. Amendments to the interstate plan occurred in 1991 and 2002, partly in response to the Council plan and amendment. Following the implementation of Amendment 2 in 2003, the Council recommended transferring the authority for managing red drum in federal waters to the Commission. Two reasons for this decision were that all harvest is taken in state waters and that, due to data deficiencies, a rebuilding schedule for the federal plan could not be set as required by law. The transfer of authority became effective in late 2008. It did not affect the red drum harvest prohibition in federal waters.

Red Drum Northern Stock Three Year Average Static Spawning Potential Ratio (sSPR) & Age-1 Recruitment



Red Drum Southern Stock Three Year Average Static Spawning Potential Ratio (sSPR) & Age-1 Recruitment



continued, see RED DRUM on page 12

Red Drum Assessment Q & A

Introduction

Following is a brief overview of the 2017 stock assessments for red drum. These assessments were initially conducted through the Southeast Data, Assessment and Review (SEDAR) process using Stock Synthesis (SS3) models. However, after further review by the Red Drum Technical Committee and Stock Assessment Subcommittee (TC/SAS), the TC/SAS expressed concern over certain assumptions made in the SS3 model. The Committee recommended reverting to the Statistical Catch-at-Age (SCA) model used in the 2009 benchmark assessment as the base model for these new assessments, with the inclusion of updated and additional data collected since the 2009 assessment.

The revised assessments were peer-reviewed by an independent panel of scientific experts through the Commission's peer review process. The assessment represents the latest and best information on the status of Atlantic coast red drum stocks and provide the scientific basis for continued management of the species. South Atlantic State/Federal Fisheries Management Board, which oversees red drum management, accepted the assessments for management use in February 2017.

What Data Were Used?

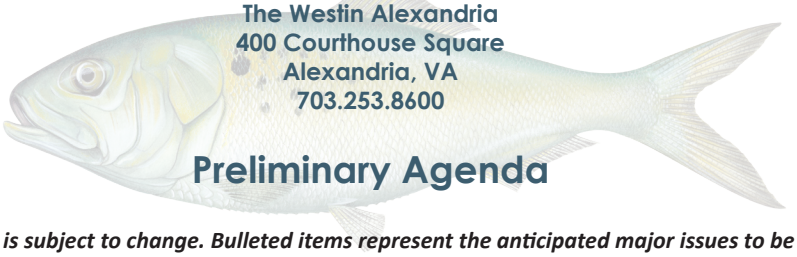
The red drum stock assessment used both fishery-dependent and -independent data, including information on red drum biology and life history. Fishery-dependent data come from recreational and commercial fisheries, while fishery-independent data are collected through scientific research and surveys. Red drum are divided into two management areas or stocks along the Atlantic coast, a northern stock (from New Jersey to North Carolina) and a southern stock (from South Carolina to Florida). The stock units are based on differences in life history traits between the two stocks (such as growth rates and maximum observed ages) and information from genetic and tagging studies indicating red drum rarely move between the two regions. Separate assessments were performed for each stock.

continued, see RED DRUM ASSESSMENT Q&A on page 12

ASMFC Spring Meeting

May 8 - 11, 2017

The Westin Alexandria
400 Courthouse Square
Alexandria, VA
703.253.8600



Preliminary Agenda

The agenda is subject to change. Bulleted items represent the anticipated major issues to be discussed or acted upon at the meeting. The final agenda will include additional items and may revise the bulleted items provided below. The agenda reflects the current estimate of time required for scheduled Board meetings. The Commission may adjust this agenda in accordance with the actual duration of Board meetings. Interested parties should anticipate Boards starting earlier or later than indicated herein.

MONDAY, MAY 8

8 AM - Noon **Climate Change Workgroup**

- Continue to Draft White Papers on Science and Policy Strategies to Assist the Commission with Adapting its Management to Changes in Species Abundance and Distribution Resulting from Climate Change Impacts

1 - 2:30 PM **Atlantic Herring Section**

- Review and Consider Draft Addendum I for Final Approval
- Review 2016 Spawning Closure Pilot Program
- Consider 2017 FMP Review and State Compliance Reports

2:45 - 5:15 PM **American Lobster Management Board**

- Review and Consider American Lobster Draft Addendum XXV for Final Approval
- American Lobster Gulf of Maine/Georges Bank Subcommittee Report
- Update on Development of Lobster Draft Addendum XXVI
- Discussion on New England Fishery Management Council Deep-Sea Coral Amendment

TUESDAY, MAY 9

8 - 10:15 AM **American Lobster Management Board (continued)**

8:30 AM - 5 PM **Law Enforcement Committee**

- Review and Update 2017 Action Plan Items
- Review and Discuss Ongoing Enforcement Activities
- Review and Discuss ASMFC Species Management Issues
- Update Survey for Enforceability Guidelines
- Develop Orientation Process for New Members
- Federal and State Agency Updates

10:30 AM - 12:30 PM **Tautog Management Board**

- Technical Committee Harvest Reduction Analyses
  - Review Technical Committee Reports for Long Island Sound, New Jersey/New York Bight and Delaware/Maryland/Virginia
  - Review Regional Working Group Feedback
- Review and Consider Draft Amendment 1 for Public Comment

continued, see SPRING MEETING PRELIMINARY AGENDA on page 10

Public Comment Guidelines

In order to ensure a fair opportunity for public input, the ISFMP Policy Board has established the following guidelines for use at management board meetings:

For issues that are not on the agenda, management boards will continue to provide opportunity to the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will use a speaker sign-up list in deciding how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

For topics that are on the agenda, but have not gone out for public comment, board chairs will provide limited opportunity for comment, taking into account the time allotted on the agenda for the topic. Chairs will have flexibility in deciding how to allocate comment opportunities; this could include hearing one comment in favor and one in opposition until the chair is satisfied further comment will not provide additional insight to the board.

For agenda action items that have already gone out for public comment, it is the Policy Board's intent to end the occasional practice of allowing extensive and lengthy public comments. Currently, board chairs have the discretion to decide what public comment to allow in these circumstances.

In addition, the following timeline has been established for the submission of written comment for issues for which the Commission has NOT established a specific public comment period (i.e., in response to proposed management action).

1. Comments received 3 weeks prior to the start of a meeting week will be included in the briefing materials.

2. Comments received by **5 PM on Tuesday, May 2, 2017** will be distributed electronically to Commissioners/Board members prior to the meeting and a limited number of copies will be provided at the meeting.

3. Following the May 2nd deadline, the commenter will be responsible for distributing the information to the management board prior to the board meeting or providing enough copies for management board consideration at the meeting (a minimum of 50 copies).

The submitted comments must clearly indicate the commenter's expectation from the ASMFC staff regarding distribution. As with other public comment, it will be accepted via mail, fax, and email.

SPRING MEETING PRELIMINARY AGENDA continued from page 9

1 - 3:15 PM **Atlantic Striped Bass Management Board**

- Review and Consider Draft Addendum V for Public Comment
- Review and Consider Approval of the 2018 Benchmark Stock Assessment Terms of Reference
- Board Guidance to Stock Assessment Subcommittee Regarding Development of Biological Reference Points for the 2018 Benchmark Assessment

3:30 - 5:45 **Atlantic Menhaden Management Board**

- Update on Development of Draft Amendment 3
- Biological Ecological Reference Point Working Group Progress Report
- Provide Guidance to Technical Committee Regarding Stock Projections
- Consider 2017 FMP Review and State Compliance Reports

6:30 **Annual Awards of Excellence Reception**

WEDNESDAY, MAY 10

8 - 9:30 AM **Executive Committee**

(A portion of this meeting may be a closed session for Committee members and Commissioners only)

- Report of the Administrative Oversight Committee
- Discussion on Advisory Panel Members Serving as Board Proxies
- Future Annual Meetings Update

9:45 - 10:45 AM **Coastal Sharks Management Board**

- Review Final Rule for NOAA Fisheries HMS Amendment 5b (Dusky Sharks)
    - Consider Complementary Management Measures (if necessary)

11 AM - Noon **Atlantic Coastal Cooperative Statistics Program Coordinating Council**

- ACCSP Status Report
    - Program Status
    - Committee Updates
- Review and Consider Approval of 2017 Request for Proposals

1 - 5 PM **Joint Meeting of the ASMFC Summer Flounder, Scup, Black Sea Bass Management Board and Mid-Atlantic Fishery Management Council**

- Review and Consider Scup Draft Addendum XXIX for Final Approval
- Update on Summer Flounder Comprehensive Amendment Work and Analysis
- Review Implementation of 2017 Summer Flounder and Black Sea Bass Recreational Measures

THURSDAY, MAY 11

8 - 10 AM **Interstate Fisheries Management Program Policy Board**

- Working Group Updates on Safe Harbor and Accounting for Illegally Harvested Fish
- Review Commissioner Survey Results
- Update on the Marine Recreational Information Program
- Review and Consider Approval of Standard Meeting Practices
- Progress Update on 2017 Sturgeon Benchmark Stock Assessment
- Review Reports from the Atlantic Coastal Fish Habitat Partnership and the Habitat, Artificial Reef and Law Enforcement Committees
- Review and Consider Approval of Assessment Schedule

10 - 10:30 AM **Business Session**

- Review Noncompliance Findings (if necessary)

10:45 AM - 2:30 PM **South Atlantic State/Federal Fisheries Management Board**

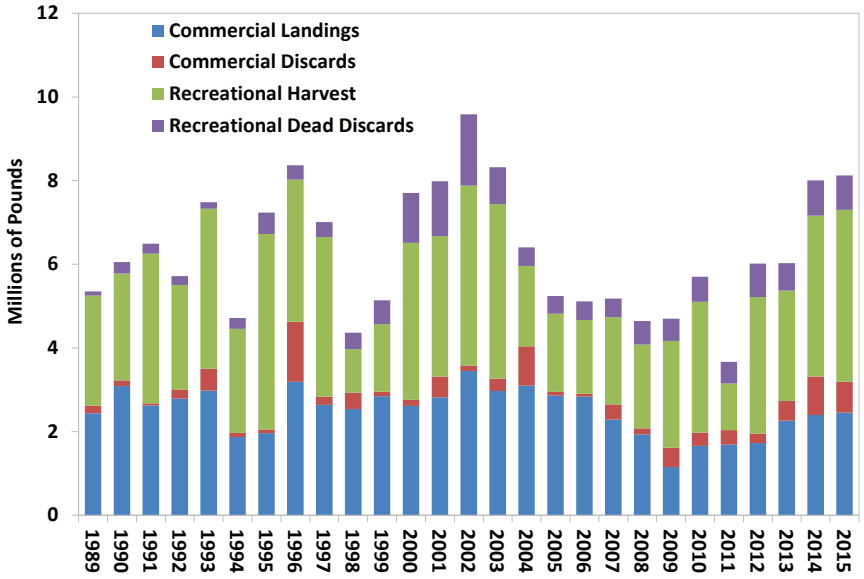
- Review and Consider Spot and Atlantic Croaker Stock Assessments and Peer Review Reports for Management Use
- Review and Consider Cobia Draft FMP for Public Comment

FISHERY MANAGEMENT ACTIONS continued from page 8

Area Monitoring and Assessment Program Surveys and state surveys from MA, RI, CT, NY, NJ, DE, MD and VA.

With improved recruitment and declining fishing mortality rates since 2007, SSB has steadily increased. SSB in 2015 was estimated at 48.9 million pounds, 2.3 times the SSB target of 21.3 million pounds, and fishing mortality (F) was estimated at 0.27, well below the F target of 0.36. To account for the fact that black sea bass are a protogynous hermaphrodite, which change sex from female to male, the assessment defined SSB as the total of male and female mature biomass which accounts for changes in sex ratio. Recruitment at age 1 averaged 24.3 million fish from 1989 to 2015, with peaks in 2000 (1999 cohort) at 37.3 million and at 68.9 million in 2012 (2011 cohort). The large 2011 cohort, which is currently moving through the fishery, was dominant in the northern area and less so in the south. Since 2012, recruitment has been average with a 2014 cohort estimated at 24.9 million fish. The distribution of black sea bass continues to expand northward into the Gulf of Maine.

Black Sea Bass Fishery Removals
Source: 62nd Northeast Regional Stock Assessment Workshop for Black Sea Bass Assessment Summary Report for 2016



Commercial landings averaged 2.9 million pounds from the late 1980s through the 1990s. Since implementation of quotas in 1998, commercial landings have ranged between 2.9 and 3.5 million pounds until 2007. Commercial landings declined to 1.2 million pounds in 2009, then increased to 2.3 million pounds in 2013 and have since remained above 2.5 million pounds. Commercial fishery discards represent a relatively small fraction of the total fishery removals from the stock. Commercial discards were generally less than 0.4 million pounds per year, but increased to 0.9 and 0.7 million pounds in 2014 and 2015, respectively. The recreational fishery harvests a significant proportion of the total catch. Recreational landings averaged 3.7 million pounds annually until 1997. Recreational harvest limits were implemented in 1998 and landings have since ranged between 1.1 and 4.4 million pounds. Recreational landings in 2015 were 4.1 million pounds. Recreational discard losses, assuming 15% hook and release mortality, are similar, generally less than 0.4 million pounds per year. Estimated mortality from recreational discards was 0.8 million pounds in 2015.

For more information about summer flounder, scup, or black sea bass please contact Kirby Rootes-Murdy, Senior FMP Coordinator, at krootes-murdy@asmfc.org.

Northern Shrimp Data Workshop Scheduled for April 5-7, 2017 in Portland, ME

The Northern Shrimp Data Workshop will be conducted April 5-7, 2017 at the Westin Portland Harborview in Portland, Maine. The Data Workshop is the first in a series of workshops to develop the next shrimp benchmark stock assessment. The assessment will evaluate the health of the Gulf of Maine northern shrimp population and inform management of this species. The Workshop is open to the public, with the exception of discussions of confidential data, when the public will be asked to leave the room.

For data sets to be considered at the workshop, data must be sent in with an accompanying methods description to Max Appelman (mappelman@asmfc.org) by March 17, 2017. All available data will be reviewed and vetted by members of the Northern Shrimp Stock Assessment Subcommittee for possible use in the assessment.

The benchmark stock assessment will be peer reviewed in April 2018. For more information on submission and presentation of materials at the Data Workshop, or attending the Data Workshop, please contact Max Appelman, FMP Coordinator, at mappelman@asmfc.org.

RED DRUM continued from page 8

The primary management goal of Amendment 2 is to achieve and maintain the stock's spawning potential at a level capable of sustaining the population. To achieve this goal, the plan further restricted the recreational fishery and maintained existing commercial regulations. The management approach is intended to increase the escapement of inshore juvenile fish to the offshore adult population, and protect the adult population from exploitation. Atlantic coast states from Florida through New Jersey implemented appropriate bag and size limits as required, including a maximum size limit of 27 inches total length. The Amendment also encourages those states outside the management unit (i.e., New York through Maine) to implement supportive measures to protect the red drum resource. In 2013, Addendum I to Amendment 2 described red drum spawning habitats and designated several areas that are important spawning and nursery grounds for red drum as habitats of concern. This Addendum helps states identify important areas that require monitoring to preserve red drum stocks.

While the Board accepted the 2017 stock assessment and peer review report for management use, further action to revise the interstate management plan was not initiated in response to the assessment. Although the stock is not subject to overfishing, managers were hesitant to liberalize any regulations without knowing if the stock is rebuilt. Several surveys that collect data on abundance of adult red drum were established following recommendations from the 2009 stock assessment. These surveys were considered for use in the 2017 assessment, but the short length of time that they have been in effect limits their ability to convey trends in adult abundance with an adequate amount of certainty. Therefore, they were not used to determine whether the stocks are overfished. Continuation of these surveys will be vital for determining overfished status for the red drum stocks in a future assessment.

For more information, please contact Mike Schmidtke, FMP Coordinator, at mschmidtke@asmfc.org.

RED DRUM ASSESSMENT Q&A continued from page 8

Fishery-independent Data

The red drum assessments used a number of different fishery-independent surveys that provide information on trends in relative abundance for different age classes. In the northern stock, the assessment used three fishery-independent surveys from North Carolina: a seine survey that catches young-of-year, a gillnet survey that catches ages one and two, and a longline survey that catches ages seven and older. In the southern stock, the assessment used eight fishery-independent surveys: a Florida small seine survey, a Georgia gill net survey, and a South Carolina stop net survey that catches age one fish; a South Carolina trammel net survey that catches fish up to age two; a Florida haul seine survey that catches age two and three fish; and longline surveys from Georgia (1 mile sets) and South Carolina (1 mile and 1/3 mile sets) that catches adult red drum ages seven and older.

Tagging Data

In the southern stock, tag-recapture data from South Carolina were used to describe the age composition of fish released alive by anglers in South Carolina and Georgia. A previously published tagging study from North Carolina was used to estimate age composition for fish released alive by anglers in Florida, as the North Carolina study was conducted when regulations were similar to Florida's regulations

In the northern region, a 2008 study provided important information used in the assessment about fishing mortality and the age composition of the fish released alive by recreational anglers.

What Models Were Used?

An SCA model was used to assess the red drum stocks. The model combines the catch-at-age data from commercial and recreational fisheries with information from fishery-independent surveys and biological information such as growth rates and natural mortality rates to estimate the abundance and fishing mortality rates of each age class. Because of the limited data on adults, the model groups all fish ages seven and older into a single "plus group." The model, which estimates static spawning potential ratios (sSPR), determines if current fishing mortality rates will likely lead to sustainability over the long-term. For the purposes of these assessments, sSPR is a measure of spawning stock biomass survival when fished at the current year's fishing mortality rate relative to the spawning stock biomass survival if no fishing mortality was occurring. Due to high variability in red drum recruitment between years, a three-year average sSPR was used to determine the status of the stock.

Data and Research Needs

More information on the abundance and age composition of the adult population (ages four and older) is critical to improving the red drum stock assessments. Several fishery-independent surveys have been developed since the last assessment. However, longer time series for the surveys are needed, most notably to improve the abundance estimation for adult (ages four and older) red drum that are not susceptible to the fishery. Additionally, tagging data were very important to the northern assessment, and similar analyses by tagging programs covering the southern stock could prove beneficial.

A more detailed overview of the assessment can be accessed at http://www.asmfc.org/uploads/file/58b5c1eaRedDrumAssessmentOverview_Feb2017.pdf.

Throughout March and April, the Commission and its member states will be busy gathering public comment on proposed management actions for American lobster (see cover story), Atlantic herring and scup. Below is a brief description of the proposed changes. Readers should visit the Commission website at http://www.asmfc.org/about-us/public-input to obtain the draft documents and view scheduled public hearings.

Atlantic Herring

The Atlantic Herring Section has released Draft Addendum I to Amendment 3 of the Interstate Fishery Management Plan for public comment. Draft Addendum I includes management options to ensure the seasonal quota is distributed throughout Trimester 2, are applied consistently by the states adjacent to Area 1A, and address excessive capacity.

The Draft Addendum was initiated in response to the accelerated rate of Area 1A Trimester 2 (June through September) landings in recent years and the increasingly dynamic nature of days out measures to control effort that have varied across states. The Section utilizes days out of the fishery to slow the rate of Area 1A catch by restricting the number of available landing days. Landing reports indicate vessels are harvesting herring on days out of the fishery and transferring fish at-sea to carrier or larger vessels until landing is permitted. The practice of fishing outside of landing days has limited the effectiveness of the days out program in controlling the rate of harvest.

The Draft Addendum presents six management options to improve the performance of the Area 1A fishery, ranging from restricting a vessel from landing fish caught on days out of the fishery to limiting transfers at sea as well as the amount a vessel can land per week. The document also seeks input on a tiered weekly landing limit for future management consideration.

Fishermen and interested stakeholders are encouraged to provide input on the Draft Addendum either by attending state public hearings or providing written comment. Public comment will be accepted until **5 PM (EST) on April 7, 2017** and should be forwarded to Ashton Harp, Fishery Management Plan Coordinator, 1050 N. Highland St, Suite 200 A-N, Arlington, VA 22201; 703.842.0741 (FAX) or at aharp@asmfc.org (Subject line: Draft Addendum I).

The Section will review submitted public comment and consider final approval of Addendum I at the Commission's Spring Meeting in May 2017. For more information, please contact Ashton Harp, FMP Coordinator, at aharp@asmfc.org.

Photo (c) Ashton Harp, ASMFC

Scup

The Summer Flounder, Scup and Black Sea Bass Management Board approved Draft Addendum XXIX to the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan for public comment. The Draft Addendum proposes shortening the length of the commercial scup summer period and extending length of the winter period(s) to better allocate the commercial quota, which has been under-harvested since 2011. The quota allocation for each period is not being altered.

The Draft Addendum was initiated jointly with the Mid-Atlantic Fishery Management Council to address concerns raised by Advisory Panel members that commercial landings have been lower than the annual limits in recent years and the quota periods could be better utilized. The changes are intended to allow higher possession limits for a longer period of time each year, thus increasing the likelihood the commercial fishery will fully harvest the quota. The Draft Addendum proposes changes to the three scup commercial quota periods (Winter I, Summer, and Winter II), specifically a change in the start and end dates for the Summer Period. The options propose to shorten the summer period by 31 or 46 days.

The Draft Addendum also proposes options to continue allowing state permitted fishermen to begin fishing early in state waters when the Winter I quota closes prior to April 15. These options include extending the number of days the earlier fishing can occur as well as the start date when earlier fishing can occur. Allowing access prior to the start of the Summer period state permitted fishermen provides access to the resource when scup are highly available to nearshore (state) fisheries.

Fishermen and interested stakeholders are encouraged to provide input on Draft Addendum XXIX either by attending state public hearings or providing written comment. Public comment will be accepted until 5 PM (EST) on March 31, 2017 and should be forwarded to Kirby Rootes-Murdy, Senior Fishery Management Plan Coordinator, 1050 N. Highland St, Suite A-N, Arlington, VA 22201; 703.842.0741 (FAX) or at comments@asmfc.org (Subject line: Draft Addendum XXIX).

The Board will review submitted public comment and consider final action on the Draft Addendum at the Commission's Spring Meeting in May 2017. For more information, please contact Kirby Rootes-Murdy at krootes-murdy@asmfc.org or 703.842.0740.

Senate Confirms Secretary of Commerce

Wilbur Ross was confirmed by the Senate to serve as Secretary of the Commerce Department on February 27th. The position is a member of the President's Cabinet, the most senior appointed officers of the executive branch serving directly under the President. The President has not nominated a candidate for NOAA Administrator yet, which also requires Senate confirmation. Ben Friedman is currently serving as Acting NOAA Administrator and Sam Rauch is currently serving as Acting Administrator for NOAA Fisheries, a position that does not require Senate confirmation. Leadership and senior staff at NOAA Fisheries is not expected to be fully in place until late in 2017.

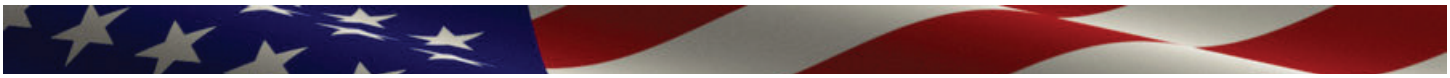
Magnuson-Stevens Act Reauthorization Reintroduced in House

Representative Don Young (R-AK) has reintroduced the 'Strengthening Fishing Communities and Increasing Flexibility in Fisheries Management Act' in the 115th Congress. A version of this legislation was passed by the House in the 114th Congress. The legislation is essentially identical to last Congress with two notable exceptions. Chairman Young decided to pull the sections on electronic monitoring and the red snapper reallocation study in the South Atlantic and Gulf of Mexico. No major action on marine fisheries issues is expected in the House Natural Resources Committee until the Administration is able to put more NOAA fisheries staff in place.

Federal Appropriations Update

For fiscal year 2017, only one appropriations bill has been enacted (Military Construction/Veterans Affairs). The rest of the federal government is operating under a Continuing Resolution at fiscal year 2016 funding levels through April 28th. Both chambers of Congress have begun work on fiscal year 2018 appropriations by initiating a budget resolution, which lays out overall funding ceilings for the year. At this point, no appropriations bills have been unveiled for fiscal year 2018.

For more information, please contact Deke Tompkins, Legislative Executive Assistant at dtompkins@asmfc.org.



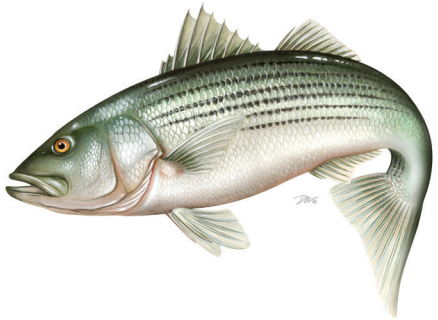
Atlantic Striped Bass Management Board Initiates Development of Draft Addendum V to Liberalize Management Measures

The Commission's Atlantic Striped Bass Management Board initiated the development of Draft Addendum V to Amendment 6 to the Atlantic Striped Bass Fishery Management Plan (FMP) to consider liberalizing coastwide commercial and recreational regulations. The Board's action responds to concerns raised by Chesapeake Bay jurisdictions regarding continued economic hardship endured by its stakeholders since the implementation of Addendum IV and information from the 2016 assessment update indicating fishing mortality is below the target.

Addendum IV, implemented for the 2015 fishing season, required coastwide harvest reductions to reduce fishing mortality (F) to a level at or below the target. Specifically, coastal fisheries implemented measures to reduce harvest by 25% compared to 2013 levels, and Chesapeake Bay fisheries implemented measures to reduce harvest by 20.5% compared to 2012 levels. Additionally, an objective of Addendum IV is to protect the 2011 year class.

According to the results of the 2016 stock assessment update, the Atlantic striped bass stock is not overfished and overfishing is not occurring. Furthermore, Addendum IV successfully reduced fishing mortality to a level below the target (F in 2015 is estimated at 0.16), and length-frequency data from the catch in 2015 indicates a strong presence of the 2011 year class which is anticipated to join the coastal spawning population this year.

A draft of the addendum will be presented for Board review in May. For more information, please contact Max Appelman, FMP Coordinator, at mappelman@asmfc.org.



ACCSP Receives Positive Reviews for 1st Year of APAIS Coordination

In 2016, the 13 Atlantic states from Maine to Georgia began cooperatively conducting the Access Point Angler Intercept Survey (APAIS) under the coordination of the Atlantic Coastal Cooperative Statistics Program (ACCSP) in order to collect dockside information on marine recreational fishing catch. These data, an integral part of the NOAA Fisheries' Marine Recreational Information Program (MRIP), had been collected by a third party contractor in previous years. Throughout this transition, ACCSP worked with each state partner as well as NOAA Fisheries to adjust assignment sample allocations by month and mode both to reflect recreational fishing activity more closely and to optimize project staffing. An added benefit of the states assuming conduct of APAIS has been greater buy-in and engagement by the states' angling communities.

ACCSP held initial field training sessions prior to sampling in 2016. Training sessions utilized regional species to sharpen samplers' fish identification and measuring skills and provided a review of proper survey procedures.

Using existing state and federal partnerships within the new cooperative approach, Partners were able to make clarifications to survey parameters within the existing survey design. For example, in an effort to increase the precision of the for-hire industry's fishing activity, states focused on obtaining additional interviews from charter boat anglers. Along with the day-to-day activities of APAIS, state Partners also updated site information and recreational fishing pressure in the MRIP Site Register. This register is the sampling frame from which monthly sampling assignments are drawn, meaning fishing sites selected from the register will be sampled by APAIS interviewers at the designated date and time. Additionally, each state worked extensively to update their vessel directories to incorporate changes in the for-hire industry, thus assisting with other surveys (e.g. For-Hire Survey) under the umbrella of MRIP.

ACCSP performed data capture, processing, and data delivery to MRIP, who in turn continued to lead survey design and develop catch and effort estimates. ACCSP relied on past experience in data management as well as its partnership with the Gulf States Marine Fisheries Commission to implement data capture technology and develop web-enabled tools for processing raw data. The development of an Assignment Tracking Application, in which all project staff were encouraged to access and provide continued feedback, established real-time communication of data to and from state partners.

Strong state commitment to maintain quality data was a major contributing factor to the success of the APAIS transition. Throughout the year, state Partners and ACCSP completed all data deliveries to the MRIP, having completed 56,849 intercepts of eligible anglers during 9,084 site-based and 683 headboat assignments. The ACCSP received positive partner feedback for its role in project coordination and data processing throughout the 2016 field season. This year, ACCSP and state partners will continue to improve communication efforts and data quality checks in order to provide the best possible data to MRIP.

2017 APAIS also includes the socioeconomic add-on survey (SEAS). Conducted once every five years, the SEAS is used to gather data about the anglers' expenditures during their recreational fishing trips in order to measure the economic importance of saltwater recreational fishing.

APAIS Lead Geoff White Receives Award for Meritorious Service

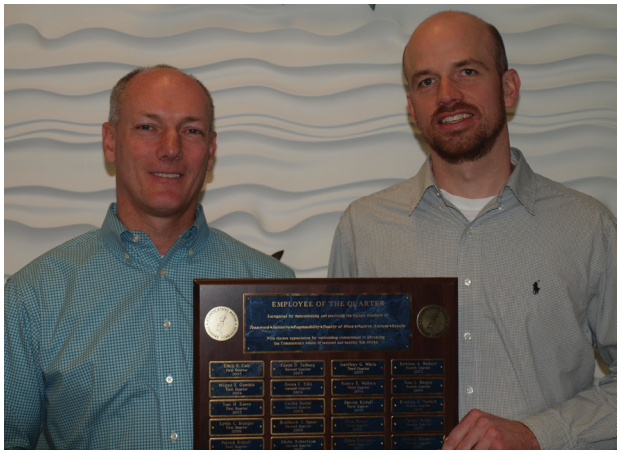
On January 10th, ACCSP Recreational Program Manager Geoff White received the Atlantic States Marine Fisheries Commission Executive Director's Award for Meritorious Service for superior performance in the successful launch and completion of the first year of state conduct of the APAIS.

Geoff has been instrumental in coordinating the transition of the survey, working with the state survey leads and NOAA's Marine Recreational Information Program (MRIP) team to ensure a smooth transition. ACCSP Director Mike Cahall said, "Geoff has been the lynchpin and architect of this successful transition. I couldn't be more pleased with the outcome. "

"Over the past two years, Geoff has done an extraordinary job of working with the states and NOAA Fisheries to successfully launch the state conduct of APAIS, MRIP's catch survey," stated ASMFC Executive Director Bob Beal. "His attention to detail, commitment to excellence and passion for improving data quality made him the perfect choice for the first recipient of the Meritorious Service Award." Congratulations Geoff!

ACCSP is a cooperative state-federal program focused on the design, implementation, and conduct of marine fisheries statistics data collection programs and the integration of those data into a single data management system that will meet the needs of fishery managers, scientists, and fishermen. It is composed of representatives from natural resource management agencies coastwide, including the Atlantic States Marine Fisheries Commission, the three Atlantic fishery management councils, the 15 Atlantic states, the Potomac River Fisheries Commission, the D.C. Fisheries and Wildlife Division, NOAA Fisheries, and the U.S. Fish & Wildlife Service. For further information please visit www.accsp.org.

Jeff Kipp Named Employee of the Quarter

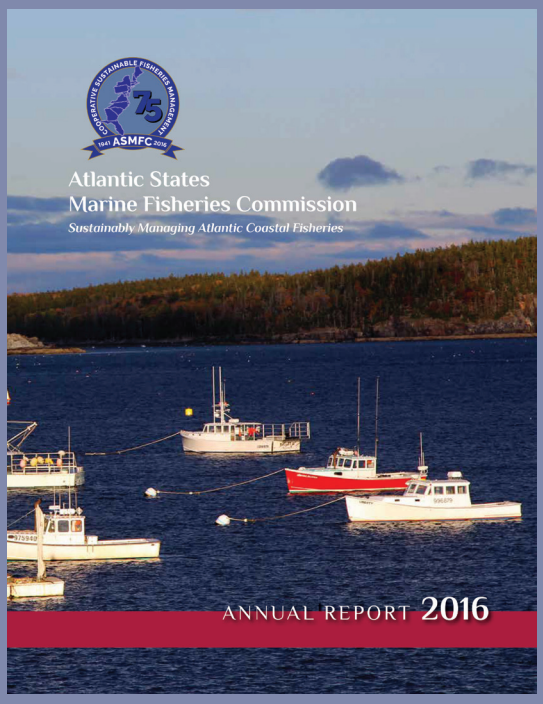


In the four and a half years since Jeff Kipp joined the Commission staff, first as Stock Assessment Scientist and later promoted to Senior Stock Assessment Scientist, he has worked with tireless dedication to elevate the quality of the Commission's science activities and stock assessment processes. In recognition of his dedication and accomplishments, Jeff was named Employee of the Quarter for the First Quarter of 2017.

Jeff was the lead analyst on the first coastwide stock assessment for black drum as well as the recently released benchmark stock assessment for red drum. Throughout the development and peer review of the latter assessment, which took over two years to conduct and included an exploration of two different models to assess the status of the stock, Jeff showed tremendous dedication, perseverance and leadership. His outstanding work resulted in the completion of a very challenging stock assessment, while also laying the path for future red drum assessments.

Jeff's myriad achievements also include co-developing new models for the first ever coastwide spot stock assessment and providing substantial analytical support for the latest croaker assessment, both of which required ingenuity, teamwork and critical problem solving. He confidently initiates new projects for the betterment of the Fisheries Science Program, showing great enterprise in launching the river herring data standardization effort and jumping in to contribute to stock assessment training workshops. Jeff is a committed team player, exhibiting creativity, thoroughness and effective communication skills in all his colloborative endeavors.

Jeff has a Professional Science Master's Degree in Quantitative Fisheries from University of Maryland Eastern Shore and a Bachelor of Science in Biology from High Point University in North Carolina. As Employee of the Quarter, he received a cash award and a letter of appreciation to be placed in his personal record. In addition, his name is on the Employee of the Quarter plaque displayed in the Commission's lobby. Congratulations, Jeff!



2016 Annual Report Now Available

The Atlantic States Marine Fisheries Commission has released its 2016 Annual Report, which provides an overview of significant management actions and associated science activities the Commission and its member states took in 2016 to maintain and restore the abundance of Commission-managed species. The Report reflects ASMFC Commissioners' commitment to accountability and transparency in all they do to manage and rebuild stocks under their care.

The report is available on the Commission website at, www.asmfc.org, under Quick Links or directly at http://www.asmfc.org/files/pub/2016AnnualReport.pdf.

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

April 27, 2017

MEMORANDUM **PR 05-17**

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Protected Resources Section Chief/Special Assistant for Councils

SUBJECT: Protected Resources Section Update

Observer Program
Tables summarizing observer coverage and protected species interactions from January through March 2017 are included. These tables provide the number of trips, observed trips, observer coverage, and protected species interactions for anchored large and small mesh gill nets by month and management unit. Please note that observer coverage is based on the average number of trips from previous years' finalized data because 2017 trip data are preliminary.

No sea turtle interactions were observed in large or small mesh gill nets from January through March 2017, and no self-reported sea turtle interactions by gill net fishermen occurred during this time.

A total of 37 Atlantic sturgeon interactions were observed in large mesh gill nets and zero in small mesh gill nets from January through March 2017, with all but one interaction occurring in March. No self-reported Atlantic sturgeon interactions by gill net fishermen occurred during this time.

Management Unit Openings and Closures
The following management units opened as a requirement of the Sea Turtle and Atlantic Sturgeon Incidental Take Permits:

- Portions of Management Unit A reopened to large mesh gill nets on Jan. 29, 2017 after staff determined that live Atlantic sturgeon takes during the winter season (December 2016 – February 2017) were lower than expected due to lower than expected fishing effort. The remainder of the management unit reopened to large mesh gill nets on March 3, 2017.
- No management units closed during this time.

Annual Sea Turtle and Atlantic Sturgeon Incidental Take Permit Reports
Included in the briefing materials are the annual reports for the Sea Turtle and Atlantic Sturgeon Incidental Take Permits that were submitted to the National Marine Fisheries Service. The annual reports describe the methodology for monitoring sea turtle and Atlantic sturgeon takes in the estuarine anchored gill net fishery, report the observer program activity by season, provide the number of observed and fishermen-reported sea turtle and Atlantic sturgeon interactions, and give the estimated total number of sea turtle and Atlantic sturgeon interactions based on percent observer coverage at the times the interactions occurred. The reports also show maps of observer trips and protected species interactions and provide information on management unit closures, incidental take permit compliance, and outreach efforts.

Observer Program Budget Summary
The Marine Fisheries Commission requested Observer Program budget information at their February 2017 business meeting. The following is the total expenditures for Fiscal Years 2014 - 2016. These fiscal years encompass the years the estuarine anchored gill net fishery operated under statewide incidental take permits from the National Marine Fisheries Service. The expenditures include the state-appropriated salaries for the Section Chief, Biologist II, and Technician III positions. Although the job responsibilities for the Biologist II and Technician III are largely associated with the Observer Program, only a portion of the Section Chief's responsibilities are associated with the Observer Program.

- Fiscal Year 2014: $576,197
- Fiscal Year 2015: $787,568
- Fiscal Year 2016: $792,407

The annual expenses can vary due to staff vacancies, fishing effort in the estuarine gill net fishery, number of observer trips conducted, the purchase of "big ticket" items such as trucks and boats, and fishermen compliance with the Observer Program.

Table 1. Preliminary data collected for large mesh gill nets by month and management unit through the NCDMF Observer Program through March 2017.

								Observed Takes By Species								
		Trips		Observer Large Mesh				Kemp's		Green		Loggerhead		Unknown	A.Sturgeon	
Month	Unit	Estimated [1]	Actual [2]	AP Attempts [3]	Trips	Yards	Coverage [4]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	A	219	94	40	3	2,900	1.4									
	B	31	11	9	0	0	0.0									
	C	16	65	23	0	0	0.0									
	D1	0	0	5	0	0	0.0									
	D2	0	4	9	0	0	0.0									
	E	5	6	49	0	0	0.0									
February	A	519	198	66	76	45,535	14.6									
	B	55	5	13	0	0	0.0									
	C	121	91	26	26	10,585	21.6								**1**	
	D1	0	0	2	0	0	0.0									
	D2	1	5	10	1	600	0.0									
	E	29	11	50	6	245	20.5									
March	A	1,126	791	30	99	72,525	8.8								**33**	
	B	73	27	22	0	0	0.0									
	C	647	428	10	64	40,655	9.9								**3**	
	D1	1	3	6	0	0	0.0									
	D2	4	1	7	2	500	47.6									
	E	73	12	68	6	1,475	8.2									
Total		2,921	1,752	445	283	175,020	9.7	0	0	0	0	0	0	0	37	0

[1] Finalized trip ticket data averaged from 2011-2015

[2] Preliminary trip ticket data for 2017

[3] Alternative Platform trips where no fishing activity was found

[4] Based on estimated trips and observer large mesh trips

Table 2. Preliminary data collected for large mesh gill nets by month through the NCDMF Observer Program through March 2017.

							Observed Takes By Species								
	Trips		Observer Large Mesh				Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Estimated [1]	Actual [2]	AP Attempts [3]	Trips	Yards	Coverage [4]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	270	180	135	3	2,900	1.1	0	0	0	0	0	0	0	0	0
February	725	310	167	109	56,965	15.0	0	0	0	0	0	0	0	**1**	0
March	1,925	1,262	143	171	115,155	8.9	0	0	0	0	0	0	0	**36**	0
Total	2,921	1,752	445	283	175,020	9.7	0	0	0	0	0	0	0	37	0

[1] Finalized trip ticket data averaged from 2011-2015

[2] Preliminary trip ticket data for 2017

[3] Alternative Platform trips where no fishing activity was found

[4] Based on estimated trips and observer large mesh trips

Table 3. Preliminary data collected for small mesh gill nets by month and management unit through the NCDMF Observer Program through March 2017.

							Observed Takes By Species								
		Trips		Observer Small Mesh			Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Unit	Estimated [1]	Actual [2]	Trips	Yards	Coverage [3]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	A	391	327	13	5,810	3.3									
	B	176	283	1	100	0.6									
	C	51	89	10	3,600	19.7									
	D1	2	1	0	0	0.0									
	D2	26	18	2	400	0.0									
	E	21	21	1	600	4.7									
February	A	488	285	31	16,530	6.4									
	B	86	328	4	1,335	4.6									
	C	66	95	10	4,200	15.2									
	D1	1	1	0	0	0.0									
	D2	16	2	5	1,000	0.0									
	E	8	3	1	120	12.5									
March	A	628	55	3	1,800	0.5									
	B	170	425	8	3,445	4.7									
	C	101	121	6	1,260	6.0									
	D1	4	6	4	1,185	109.1									
	D2	4	3	0	0	0.0									
	E	21	5	3	1,330	14.1									
Total		2,260	2,068	102	42,715	4.5	0	0	0	0	0	0	0	0	0

[1] Finalized trip ticket data averaged from 2013-2015

[2] Preliminary trip ticket data for 2017

[3] Based on estimated trips and observer small mesh trips

Table 4. Preliminary data collected for small mesh gill nets by month through the NCDMF Observer Program through March 2017.

						Observed Takes By Species								
	Trips		Observer Small Mesh			Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Estimated [1]	Actual [2]	Trips	Yards	Coverage [3]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	666	739	27	10,510	4.1	0	0	0	0	0	0	0	0	0
February	666	714	51	23,185	7.7	0	0	0	0	0	0	0	0	0
March	928	615	24	9,020	2.6	0	0	0	0	0	0	0	0	0
Total	2,260	2,068	102	42,715	4.5	0	0	0	0	0	0	0	0	0

[1] Finalized trip ticket data averaged from 2013-2015

[2] Preliminary trip ticket data for 2017

[3] Based on estimated trips and observer small mesh trips

Annual Atlantic Sturgeon Interaction Monitoring of the Anchored Gill-Net Fisheries in North Carolina for Incidental Take Permit Year 2016

Annual Completion Report for Activities under Endangered Species Act
Section 10 Incidental Take Permit No. 18102

Jacob Boyd

North Carolina Department of Environmental Quality
North Carolina Division of Marine Fisheries
Protected Resources Section
3441 Arendell Street
Morehead City, NC 28557

February 2017

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The North Carolina Division of Marine Fisheries (NCDMF) applied for an Incidental Take Permit (ITP) under Section 10(a)(1)(B) of the Endangered Species Act (ESA) of 1973 (Public Law 93-205, ESA) on April 5, 2012 for Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) interactions with the anchored gill-net fisheries in North Carolina's internal coastal (estuarine) waters. This request was prompted by notification from the National Marine Fisheries Service (NMFS) in February 2012 indicating the intent to list the Carolina Distinct Population Segment (DPS) of Atlantic Sturgeon as endangered under the ESA. The NCDMF requested an ITP to implement a proposed conservation plan that ensured a reasonable level of authorized Atlantic Sturgeon incidental takes will occur, while allowing North Carolina's estuarine anchored gill-net fisheries to operate. The NCDMF requested the NMFS to authorize such takes that are incidental to normal fishing activity with increased public outreach by the NCDMF to help fishermen avoid, minimize, and mitigate incidental takes of Atlantic Sturgeon.

Feedback on the ITP application was received from the NMFS on May 29, 2012 via a teleconference with the NCDMF and the NMFS staff. After further review, on July 20, 2012, the NMFS requested the NCDMF to submit a revised permit application and Conservation Plan that addressed issues that were provided. In response to requested changes from the NMFS, the NCDMF made extensive revisions and resubmitted the application on December 20, 2012. Upon further review the NMFS provided the NCDMF with a list of questions they had regarding the application. On February 4, 2013, the NMFS and the NCDMF went over questions regarding the ITP application and Conservation Plan. Another revised ITP application was resubmitted to the NMFS on June 28, 2013, encompassing all comments and concerns raised by the NMFS. On July 9, 2013, the NMFS published a notice of receipt of the NCDMF application (File No. 18102) in the Federal Register (78 FR 41034). The comment period ended August 8, 2013. After further deliberation with the NMFS another revision of the Atlantic Sturgeon ITP was resubmitted on January 2, 2014.

The NCDMF received the Atlantic Sturgeon ITP on July 22, 2014. The Atlantic Sturgeon ITP defined an ITP Year as beginning on September 1 and running through August 31 of the following year. This ITP authorized the implementation of adaptive management measures to protect endangered Atlantic Sturgeon and other ESA listed species, while allowing anchored gill-net fisheries to be prosecuted in the estuarine waters of North Carolina. The ITPs Conservation Plan specifies further measures, which the NMFS determined will minimize, monitor, and mitigate the impacts of incidental takes of ESA-listed Atlantic Sturgeon from the Gulf of Maine, New York Bight, Chesapeake, Carolina, and South Atlantic DPSs, associated with the otherwise lawful anchored gill-net fisheries operating in estuarine North Carolina waters. Anchored gill nets are passive sets deployed with an anchor, stake, or boat at one or both ends of the net shots or operation. Anchored gill nets do not include the following types of gill nets: run around, strike, drop or drift gill nets.

The Annual Completion Report for ITP Year 2014 (September 1, 2013 – August 31, 2014) was submitted January 30, 2015 (Boyd 2015a). During review of the 2014 Atlantic Sturgeon ITP Annual Completion Report, the NMFS requested modifications to certain tables in the annual report. These modifications were addressed in the Annual Completion report for ITP Year 2015 (September 1, 2014 – August 31, 2015) which was submitted January 30, 2016 and included: maps for each management unit to include number of gill-net hauls and Atlantic Sturgeon interactions and tables which have all of the estimated/observed takes exactly as portrayed in the permit with 95% confidence intervals included (Boyd 2016a).

METHODS

Observer Activity

The conservation plan includes managing the estuarine anchored gill-net fisheries by dividing North Carolina's estuarine waters into seven management units (A1, A2, A3, B, C, D, and E; Figure 1). Trip Ticket Program (TTP) data along with Observer Program data from previous years are used when estimating the amount of trips needed for the current year in each management unit and season. Also, real time TTP data are used for areas where effort may be increasing. Each year effort can potentially shift from one management unit to another making it important for the NCDMF to not base the observer effort solely on previous years' data, but also on current effort. To account for fluctuations in TTP data caused by management unit closings, a five-year average was used for estimating anchored large mesh gill-net fishing trips and a three-year average was used for estimating anchored small mesh gill-net fishing trips for ITP Year 2016. This method of estimating trips proves to more accurately reflect the current fishing effort. Once TTP data are finalized in May of 2017, the final observer coverage will be recalculated and the finalized estimates of observer coverage will be provided to the NMFS.

Observer coverage was calculated for each season in each management unit by estimating fishing trips using an average of the previous five years' TTP data (2011-2015) for anchored large mesh gill nets, and the average of the previous three years' (2013-2015) TTP data for anchored small mesh gill nets, while taking reduced season dates in each management unit into account by calculating the proportion of actual to possible fishing days. This calculated estimated fishing effort was compared to the observer trips completed throughout the ITP Year. The average, normalized effort was used when estimating fishing trips to account for the fluctuation of fishing effort throughout the years due to closures and other regulations put in place throughout the time series.

The onboard Observer Program, where observers ride onboard fishermen's vessels, is the preferred method of obtaining observer data and is used most frequently. Protected species interactions, gear parameters, as well as detailed gill-net catch, bycatch, and discard information for all species caught are recorded. The alternative platform Observer program requires two observers in a state owned vessel to monitor commercial fishermen hauling their gill nets. The alternative platform observers document protected species interactions and also provide catch and discard estimates for other species that are observed. The amount of biological data that are collected on alternative platform observer trips is notably less than onboard observer trips. Therefore, onboard observer trips are highly preferred due to the information being used when making management decisions, in stock assessments, in the development of fishery management plans, and for identifying and characterizing bycatch (finfish, protected species) problem areas. For alternative platform trips, observers and Marine Patrol follow similar protocols using NCDMF vessels to observe the fishing trip. Each observer attempts to obtain a minimum of three to four trips per working week when fishing activity is occurring. Observers are assigned a

management unit to work weekly and the amount of observers assigned to a management unit depends upon the season and fishing effort. Fishing effort is estimated from the previous 3-5 year's TTP data by week, month, and management unit to determine where and how much observer coverage is needed each week and for each management unit by month/season. Reports from observers and other staff are used to determine if effort is fluctuating between management units. Trends from the previous years' TTP data are also analyzed to determine if fishing effort is shifting from one management unit to another. Fishermen holding an Estuarine Gill Net Permit (EGNP) in North Carolina are pooled by management unit and further split into lists by geographic area within units. The contact information for these fishermen is then given to the observers assigned to that area and the observers contact the fishermen to set up trips from the list of names given. Preliminary TTP information is also used to refine the list to represent individuals who are actively participating in fishing activities. Observers continually visit fish houses and dealers where they hand out business cards with their contact information and brochures explaining the Observer Program, giving the fishermen another outlet to allow observers on their vessels. Additionally, the Observer Program uses a website (http://portal.ncdenr.org/web/mf/observers-program) to provide outreach to fishermen to facilitate obtaining trips.

Alternative platform trips are utilized for areas that may be hard to get onboard trips (i.e., fishermen in remote locations that leave from their residence by boat). Alternative platform trips are also utilized in areas where fishing effort may increase quickly, where Atlantic Sturgeon abundance is high, and when observers are unable to set-up onboard trips due to fisherman compliance issues. Marine Patrol also conducts alternative platform trips weekly in all management units based on similar methodologies as the Observer Program. Coordination of onboard, alternative platform, and Marine Patrol alternative platform trips is done regularly to avoid sampling bias by avoiding multiple observations of a single trip and to achieve the maximum amount of observer coverage possible for each management unit. Changes in effort, Atlantic Sturgeon abundance (i.e., observed and reported interactions), and other protected species interactions are monitored on a daily, weekly, and monthly basis to ensure proper observer coverage is being maintained. The ITP requires a minimum of 7% observer coverage, with a goal of 10% of the total anchored large mesh gill-net (≥5 inches stretched mesh-ISM) fishing trips, and a minimum of 1% coverage, with a goal of 2% of the total anchored small mesh gill-net (<5 ISM) fishing trips per management unit for the winter, spring, summer, and fall seasons.

Observers are trained to identify, measure, evaluate condition, and tag Atlantic Sturgeon. Data collected on observed Sturgeon includes: Date, time, tag numbers, location (latitude and longitude, when possible), condition (i.e., no apparent harm, injury including a description of the nature of the injury, or mortality), species, total length (TL mm), and fork length (FL mm). Photographs and environmental parameters (i.e., salinity, water temperature) are also collected

when feasible. Dead Atlantic Sturgeon are retained by the observer when feasible. Observers also collect data on location, gear parameters, catch, and bycatch for each haul depending on the observed trip type (onboard/alternative platform). The catch is sampled throughout each onboard trip including weights, lengths, and disposition (alive/dead). Data are coded on the NCDMF data sheets and uploaded to the NCDMF Biological Database for analysis. All observers are debriefed within 24 hours of each trip to obtain data on catch, set locations, gear parameters, and Atlantic Sturgeon interactions to provide estimates of Atlantic Sturgeon bycatch.

The total bycatch of Atlantic Sturgeon for each management unit was estimated using the stratified ratio method (SAS 2004). The bycatch rate (Atlantic Sturgeon caught per fishing trip) estimated from observer data was multiplied by the total fishing trips (average of the previous 3-5 year's TTP data). To estimate confidence intervals (95%), the bootstrap method was used to sample estimates. Strata consisted of five management units (A, B, C, D, and E) where management unit A1-A3 (A) and D1-D2 (D) were combined for analysis (Figure 1). Estimates were calculated by date of capture, management unit, and disposition. Estimates were accumulated each week to implement necessary management measures if authorized take thresholds were approached.

$$\text{Estimated Interactions} = \left(\frac{\text{\# of Atlantic Sturgeon interactions observed}}{\text{total gill-net trips observed}}\right) \text{total gill-net trips}$$

Seasons

The Observer Program's activities are reported on a monthly and annual basis. Monthly progress reports include information such as take estimates, cumulative totals, number of observed trips, and observed takes with all associated information. Annual reports include actual and estimated takes including mortality and the level of uncertainty of the estimates (i.e., 95% confidence intervals) by management unit, size composition along with all other interaction information, one or more maps illustrating the geographic distribution of all observed anchored large and small mesh gill-net hauls and the locations of all interactions, and a description of the mitigation activities, adaptive management actions, and enforcement activities conducted during the ITP year.

Authorized Takes

Authorized levels of annual incidental takes are specified in Tables 1 and 2. The amount of incidental takes are expressed as either estimated or observed takes depending on the amount of data available for modeling predicted takes. Management unit A has estimated authorized takes per season for both anchored large and small mesh gill nets due to having robust data sets for the area. All other management units (i.e., B, C, D, E) have observed authorized takes, which are actual takes and not estimated due to the lack of data for modeling estimated takes. Extrapolated Atlantic Sturgeon takes were computed by dividing the number of Atlantic Sturgeon interactions

observed by the total anchored gill-net trips observed and then multiplying by the total anchored gill-net trips. Nonparametric confidence intervals (95%) were calculated using standard bootstrapping techniques (Efron and Tibshirani 1993) using the 'boot' package in R (Canty and Ripley 2015; Davison and Hinkley 1997; R Core Team 2015). Bootstrap replicates were generated by sampling observer trips with replacement 5,000 times within strata (mesh/season/management unit; Tables 1 and 2). Takes must be incidental to otherwise lawful activities associated with the anchored large and small mesh gill-net fisheries, and as conditioned herein. The permit covers incidental takes from the date of issuance through July 17, 2024. The NCDMF will use preliminary data to monitor the total number of live and dead takes per unit and season to determine if the NCDMF is approaching or has reached the authorized Atlantic Sturgeon takes. Once TTP data are finalized in May of 2017, the final authorized estimated Atlantic Sturgeon takes will be recalculated and the finalized estimates will be provided to the NMFS. There is no "real time" method to determine which DPS a take should be allocated to. The required genetic sampling will provide a metric to allocate observed and predicted takes to the individual DPS level, but this will not be determined until after genetic samples are processed and if funding allows.

Compliance

The NCDMF observers and Marine Patrol conduct weekly fish house visits, boat patrols, fisherman spot checks, gear checks, aerial surveys, and continued outreach to the industry for the purpose of ensuring industry compliance and communicating efforts throughout the state.

The Observer Program has various ways to contact fishermen to schedule trips. The most common method is by phone due to limited program resources, fishermen leaving from their residence, and efficiency. The Observer Program has a contact log which is filled out for every phone call or contact that is made when attempting to obtain a trip. Each contact was put into a specific category and other information is gathered (Table 3). The contact log was analyzed by month and category to determine what percentage of phone calls resulted in observer trips.

RESULTS

Observer activity

Fall 2015

The fall 2015 season for anchored large and small mesh gill nets in North Carolina was September through November for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 16230. Anchored large and small mesh gill nets opened via proclamation M-13-2015 on September 1, 2015 in the western portion of management unit A with the eastern portion of Albemarle Sound including Croatan and Roanoke sounds remaining closed to minimize sea turtle interactions (Table 4; Boyd 2015b). Management unit E closed to anchored large mesh gill nets via proclamation M-14-2015 on September 1, 2015 to minimize sea turtle interactions. Management unit C opened to anchored large and small mesh gill nets via proclamation M-14-2015 on September 1, 2015 but closed to anchored large mesh gill nets via proclamation M-15-2015 on September 24, 2015 through the end of the fall 2015 season due to approaching authorized Atlantic Sturgeon interactions. Anchored large mesh gill nets closed via proclamation M-20-2015 on October 17, 2015 in management unit B subunits (SGNRA 1-4, CGNRA) to minimize sea turtle interactions with subunit MGNRA remaining open. Anchored large and small mesh gill nets closed via proclamation M-21-2015 on October 17, 2015 in management unit A due to sea turtle interactions. Portions of management unit A (western Albemarle Sound, Currituck Sound) reopened on October 26 and November 2, 2015 via proclamations M-22-2015 and M-23-2015, respectively. Management unit D1 and the eastern subunits of management unit B (SGNRA 1-4, CGNRA) opened to anchored large and small mesh gill nets on November 2, 2015 via proclamation M-24-2015. Management unit B closed to anchored large mesh gill nets via proclamation M-25-2015 on November 5, 2015 due to sea turtle interactions (Table 4; Boyd 2015b).

The Observer Program achieved an estimated 10.2% overall anchored large mesh gill-net coverage for the fall 2015 season meeting the minimum requirement (7.0%) in all management units based on preliminary data (Table 5; Figures 2 - 7; Boyd 2015b).

The Observer Program achieved an estimated 4.1% overall anchored small mesh gill-net coverage for the fall 2015 season meeting the minimum requirement (1.0%) in all management units based on preliminary data (Table 6; Figures 2 - 7; Boyd 2015b).

There was a total of 36 observed Atlantic Sturgeon interactions from anchored large mesh gill nets for the fall 2015 season (Table 7; Figures 2 - 7). Of the 36 interactions, 94.4% (n = 34) were alive. The majority of the interactions (83.3%; n = 30) occurred in management unit A (Table 7; Figures 2 - 7). Management unit C had five interactions (n = 4 alive; n = 1 dead) and management unit D had one alive interaction during this time period (Table 7). Four fisherman

self-reported Atlantic Sturgeon interactions during this time period, three from management unit C and one from management unit D (Table 8).

Winter 2015-2016

The winter 2015-2016 season for anchored large and small mesh gill nets in North Carolina was December through February for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 18102. The flounder commercial harvest season in internal coastal waters closed on December 1, 2015 via proclamation FF-56-2015 as per Amendment 1 to the Southern Flounder Fishery Management Plan (Table 4). Management unit A closed to anchored large mesh gill nets via proclamation M-27-2015 on November 23, 2015 to minimize sea turtle interactions. Portions of management unit A (western Albemarle Sound) reopened to anchored large mesh gill nets via proclamation M-32-2015 on December 7, 2015 to allow fishermen to participate in the catfish fishery while maintaining a closure of all anchored gill nets in the eastern portions to avoid interactions with sea turtles. All other management units remained open to anchored large and small mesh gill nets for the duration of the winter 2015-2016 season (Table 4).

The Observer Program achieved an estimated 15.6% overall anchored large mesh gill-net coverage for the winter 2015-2016 season meeting the minimum requirement (7.0%) in management units C and E based on preliminary data (Table 5; Figures 2 - 7; Boyd 2015b). There were no anchored large mesh gill-net trips observed in management units B and D during this time period. Observer coverage for management unit A was 4.1% for the winter 2015-2016 season (Table 5; Figures 2 – 7).

The Observer Program achieved an estimated 3.5% overall anchored small mesh gill-net coverage for the winter 2015-2016 season meeting the minimum requirement (1.0%) in each management unit except for management unit B (0.6%) based on preliminary data (Table 6; Figures 2 - 7).

There was a total of 10 observed Atlantic Sturgeon interactions from anchored large mesh gill nets and four from anchored small mesh gill nets for the winter 2015-2016 season (Table 7; Figures 2 - 7). All 14 Atlantic Sturgeon interactions were alive and observed in management unit A (Table 7; Figures 2 - 7). No fisherman self-reported Atlantic Sturgeon interactions occurred during this time period (Table 8).

Spring 2016

The spring 2016 season for anchored large and small mesh gill nets in North Carolina was March through May for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 18102. American shad season began in management unit A on March 3, 2016 via proclamation M-2-2016 implementing gill net restrictions (i.e., 100 yard maximum net length, 25-yard spacing, 12-hour soak time, four-day fishing weeks, 15 meshes deep, maximum

of 2,000 yards combined, prohibited to use floats) for anchored large mesh gill nets in the eastern portions of Albemarle Sound including Croatan and Roanoke sounds while implementing gill-net configurations (i.e., remove vertical height restrictions, allow floats) to allow for harvesting American shad in portions of management unit A (Table 4; Boyd 2016b). Portions of management unit E (upper Cape Fear and Northeast Cape Fear rivers) closed to anchored large mesh gill nets via proclamation M-5-2016 on April 10, 2016 due to an interaction with a Shortnose Sturgeon (*Acipenser brevirosturm*). Management unit A closed to anchored large mesh gill nets via proclamation M-6-2016 on April 23, 2016 for the remainder of the spring 2016 season due to reaching authorized dead Atlantic Sturgeon takes. Management unit E closed to anchored small mesh gill nets via proclamation M-8-2016 on May 4, 2016 for the remainder of ITP Year 2016 due to reaching authorized sea turtle takes. Management unit D1 closed to anchored large mesh gill nets via proclamation M-9-2016 on May 9, 2016 as part of the annual closure outlined in the ITP (Table 4; Boyd 2016b).

The Observer Program achieved an estimated 9.5% overall anchored large mesh gill-net coverage for the spring 2016 season meeting the minimum requirement (7.0%) in each management unit except for management unit B (6.7%) and management unit D (3.3%) based on preliminary data (Table 5; Figures 2 - 7; Boyd 2016b).

The Observer Program achieved an estimated 2.6% overall anchored small mesh gill-net coverage for the spring 2016 season meeting the minimum requirement (1.0%) in each management unit based on preliminary data (Table 6; Figures 2 - 7; Boyd 2016b).

There was a total of 10 observed Atlantic Sturgeon interactions from anchored large mesh gill nets and one from anchored small mesh gill nets for the spring 2016 season (Table 7; Figures 2 - 7). Of the 11 interactions, 72.7% (n = 8) were alive. More than half of the interactions (54.5%) occurred in management unit A (n = 4 alive; n = 2 dead) with management unit E having four interactions (n = 3 alive; n = 1 dead). Management unit B had one alive interaction in anchored small mesh gill nets during this time period. A Shortnose Sturgeon was also observed alive in management unit E during the spring 2016 season (Table 7; Figures 2 - 7). No fisherman self-reported Atlantic Sturgeon interactions occurred during this time period (Table 8).

Summer 2016

The summer 2016 season for anchored large and small mesh gill nets in North Carolina was June through August for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 18102. The western portions of management unit A reopened to anchored large mesh gill nets via proclamation M-10-2016 on June 1, 2016 while maintaining the closure of all anchored gill nets in the eastern portion of the management unit to avoid interactions with sea turtles (Table 4; Boyd 2016c). Management unit A was previously closed to the use of anchored large mesh gill nets on April 23, 2016 via proclamation M-6-2016 due to reaching authorized dead Atlantic Sturgeon takes. Management unit B closed to anchored large

mesh gill nets via proclamation M-12-2016 on June 6, 2016 for the remainder of the summer 2016 season due to reaching authorized sea turtle takes. Management unit A closed to anchored large and small mesh gill nets via proclamation M-13-2016 on June 7, 2016 for the remainder of the summer 2016 season due to reaching authorized sea turtle takes. Portions of management unit E (upper Cape Fear and Northeast Cape Fear rivers) remained closed from April 10, 2016 through the summer 2016 season to anchored large mesh gill nets due to an interaction with a Shortnose Sturgeon. Management unit E remained closed through the summer 2016 season to anchored small mesh gill nets due to reaching authorized sea turtle takes on May 4, 2016. Management unit D1 remained closed through the summer 2016 season to anchored large mesh gill nets as part of the annual closure outlined in the Sea Turtle ITP (Table 4; Boyd 2016c).

The Observer Program achieved an estimated 14.2% overall anchored large mesh gill-net coverage for the summer 2016 season meeting the minimum requirement (7.0%) in all management units based on preliminary data (Table 5; Figures 2 - 7). Management unit D1 was closed for the duration of the summer 2016 season as part of the annual closure outlined in the Sea Turtle ITP (Boyd 2016c).

The Observer Program achieved an estimated 1.2% overall anchored small mesh gill-net coverage for the summer 2016 season meeting the minimum requirement (1.0%) in all management units except management units A and B based on preliminary data (Table 6; Figures 2 - 7). Observer coverage for management unit B was 0.7%, management unit A was 0.0%, and management unit E remained closed to anchored small mesh gill nets for the duration of the summer 2016 season (Table 4; Boyd 2016c).

There was one alive observed Atlantic Sturgeon interaction from anchored large mesh gill nets for the summer 2016 season in management unit A (Table 7; Figures 2 - 7). No fisherman self-reported Atlantic Sturgeon interactions occurred during this time period (Table 8).

Authorized Takes

There was a total of 57 observed Atlantic Sturgeon interactions in anchored large mesh gill nets and five in anchored small mesh gill nets for ITP Year 2016 (Table 7; Figures 2 - 7). Of the 62 interactions, 91.9% (n = 57) were alive (Table 7). The percentage of authorized takes that were utilized in ITP Year 2016 for anchored large mesh gill nets were calculated for estimated takes (27.3% alive, 6.5% dead) and observed takes (10.9% alive, 13.3% dead) statewide. The percentage of authorized takes that were utilized in ITP Year 2016 for anchored small mesh gill nets were also calculated for estimated takes (16.3% alive, 0.0% dead) and observed takes (2.4% alive, 0.0% dead) statewide. Overall, for both anchored large and small mesh gill nets the percent of estimated takes utilized (24.7% alive, 6.0% dead) and observed takes utilized (7.6% alive, 7.1% dead) was below the authorized takes provided by the Atlantic Sturgeon ITP. Observed interactions mostly occurred in management unit A (82.2%; n = 51). There was one

interaction in management unit B (1.6%), five interactions in management unit C (8.1%), one interaction in management unit D (1.6%), and four interactions in management unit E (6.5%; Table 7; Figures 2 - 7). All of the reported Atlantic Sturgeon interactions (n = 4) for ITP Year 2016 were reported by fisherman (Table 8).

The size distribution of Atlantic Sturgeon (n = 57) ranged from a total length (TL) of 460 mm to 1,140 mm and a fork length (FL) of 400 mm to 1,080 mm (Figures 8 and 9).

The cumulative total estimated and observed takes for anchored large and small mesh gill nets only reached the threshold for alive takes from large mesh gill nets in management unit A for the winter 2015-2016 season and dead takes from large mesh gill nets in management unit A for the spring 2016 season based on preliminary data (Tables 1 and 2).

Compliance

Marine Patrol made 909 gill-net checks during the fall 2015 season resulting in 38 citations being issued (Tables 9 and 10). Marine Patrol made 127 gill-net checks for the winter 2015-2016 season resulting in 10 citations being issued. Marine Patrol made 286 gill-net checks for the spring 2016 season resulting in 16 citations being issued. Marine Patrol made 283 gill-net checks for the summer 2016 season with no citations being issued (Tables 9 and 10; Boyd 2015b, Boyd 2016b, Boyd 2016c).

In the fall 2015 season a total of 4,613 phone calls were made with 49.3% (n = 2,275) being categorized as 1, 8, 11, 12, 13, and 14, which inclusively represents not being able to get in touch with fishermen or fishermen refusing trips (Table 11). In the winter 2015-2016 season 215 phone calls were made with 50.2% (n = 108) being categorized as 1, 8, 11, 12, 13, and 14. In the spring 2016 season, 3,169 phone calls were made with 52.1% (n = 1,638) being categorized as 1, 8, 11, 12, 13, and 14. In the summer 2016 season, 3,996 phone calls were made with 58.0% (n = 2,319) being categorized as 1, 8, 11, 12, 13, and 14 (Table 11). Notices of Violations (NOV) were issued when fishermen were found to be out of compliance with the EGNP with 18 NOVs issued during the fall 2015 season, six NOVs were issued during the winter 2015-2016 season, and six NOVs were issued during the spring 2016 season (Table 12; Boyd 2015b, Boyd 2016b, Boyd 2016c). No NOVs were issued during the summer 2016 season.

DISCUSSION

Management history

Initial reviews of the Atlantic Sturgeon status began in 1977, when the Research Management Division of the NMFS sponsored the preparation of a report on the biology and status of Atlantic Sturgeon (Murawski and Pacheco 1977). In 1980 at the request of the NMFS, another document was prepared by Hoff (1980) to assist in making future Atlantic Sturgeon fisheries decisions and to determine what action was required, if any, to conserve the species under the ESA. In 1988, the NMFS requested information regarding the status of Atlantic Sturgeon. The NMFS added Atlantic Sturgeon to its candidate species list published in the Federal Register (FR) in 1997 (62 FR 37560, 14 July 1997, NMFS 1997a).

Prior to the federal listing, North Carolina had taken steps to protect Atlantic Sturgeon. The NCDMF implemented a statewide moratorium on the possession of Atlantic Sturgeon in 1991 (15A NCAC 03M .0508).

In April 2004, the NMFS published a subsequent notice announcing that the NMFS "candidate species list" was being changed to the "Species of Concern (SOC) list" to better reflect the ESA definition of candidate species while maintaining a separate list of species potentially at risk (69 FR 19975 -15 April 2004, NMFS 2004; ASSRT 2007).

On June 2, 1997, a petition dated May 29, 1997 was received by the NMFS from the Biodiversity Legal Foundation. The petitioner requested that the NMFS list Atlantic Sturgeon, where it continues to exist in the United States, as threatened or endangered and designate critical habitat. The NMFS reviewed the request and determined that the petition presented substantial information indicating that the petitioned action may be warranted and announced the initiation of a status review (62 FR 54018, 12 October 1997, NMFS 1997b; ASSRT 2007). The NMFS and United States Fish and Wildlife Service (USFWS) completed their status review in 1998 and concluded at that time Atlantic Sturgeon were not threatened or endangered based on any of the five factors (NMFS and USFWS 1998). The five factors are described in section 4(a)(1) of the ESA and include the following: 1) The present or threatened destruction, modification, or curtailment of habitat or range; 2) Overutilization for commercial, recreational, scientific, or educational purposes; 3) Disease or predation; 4) The inadequacy of existing regulatory mechanisms; and 5) Other natural or manmade factors affecting its continued existence (NMFS and USFWS 1998). Concurrently, the Atlantic States Marine Fisheries Commission (ASMFC) completed Amendment 1 to the 1990 Atlantic Sturgeon FMP in 1998 that imposed a 20 to 40 year moratorium on all Atlantic Sturgeon fisheries until the Atlantic Coast spawning stocks could be restored to a level where 20 subsequent year-classes of adult females were protected (ASMFC 1998). The NMFS followed this action by closing the Exclusive Economic Zone (EEZ) to Atlantic Sturgeon harvest in 1999. In 2003, a workshop on the "Status and Management of Atlantic Sturgeon" was held to discuss the current status of

Atlantic Sturgeon along the Atlantic Coast and determine what obstacles, if any, were impeding the recovery of Atlantic Sturgeon (Kahnle et al. 2005; ASSRT 2007).

Based on the information gathered from the 2003 workshop on Atlantic Sturgeon, the NMFS decided that a second review of Atlantic Sturgeon status was needed to determine if listing as threatened or endangered under the ESA was warranted. The 2007 analysis from the Atlantic Sturgeon Status Review Team (ASSRT) determined that at least three (New York Bight, Chesapeake Bay, and Carolina) of the five DPSs should be considered threatened under the ESA, as it was determined that they had a moderately high risk of becoming threatened in the foreseeable future (next 20 years). The ASSRT determined that the remaining two DPSs (Gulf of Maine, South Atlantic) had a moderate risk of becoming extinct, though there were insufficient data to allow for a full assessment of these subpopulations; thus, a listing recommendation was not provided (ASSRT 2007).

On October 6, 2009, the NMFS received a petition from the Natural Resources Defense Council to list Atlantic Sturgeon throughout its range as endangered under the ESA. As an alternative, the petitioner requested that the species be listed as the five DPSs described in the 2007 Atlantic Sturgeon status review (ASSRT 2007), with the GOM and South Atlantic DPSs listed as threatened and the remaining three DPSs listed as endangered. The petitioner also requested that critical habitat be designated for Atlantic Sturgeon under the ESA. The NMFS published a Notice of 90-Day Finding on January 6, 2010 (75 FR 838, 6 January 2010, NMFS 2010) stating that the petition presented substantial scientific or commercial information indicating that the petitioned actions may be warranted. The NMFS considered the information provided in the status review report, the petition, other new information available since completion of the status review report, and information submitted in response to the Federal Register announcement of the 90-day finding (75 FR 838, 6 January 2010, NMFS 2010). On October 6, 2010, the NMFS published a proposed rule to list the Carolina DPS of Atlantic Sturgeon as endangered under the ESA (75 FR 61872, 6 October 2010, NMFS 2010). On February 6, 2012 the NMFS issued a final determination to list the Carolina DPS of Atlantic Sturgeon as an endangered species under the ESA (77 FR 5914, 6 February 2012, NMFS 2012).

Prior to the listing of Atlantic Sturgeon, NCDMF has addressed protected species issues in the coastal waters of North Carolina since the 1970s. The NCDMF applied for and received four ITPs for the Pamlico Sound Gill Net Restricted Area (PSGNRA) from 2000 to 2005 to address sea turtle takes in the anchored large and small mesh gill-net fisheries for the Pamlico Sound portion of the state during the fall months (Gearhart 2001, 2002, 2003; Price 2004, 2005, 2006, 2007, 2008, 2009, 2010; Murphey 2011; Boyd 2012, 2013). The NCDMF applied for and received a 10-year ITP addressing sea turtle takes in the anchored large and small mesh gill-net fisheries statewide on September 11, 2013. This ITP authorized the implementation of adaptive management measures to protect threatened and endangered sea turtles and other ESA listed

species, while allowing the anchored gill-net fisheries prosecuted by license holders to occur in the estuarine waters of North Carolina. The Sea Turtle ITP No. 16230 defined an ITP Year as beginning on September 1 and running through August 31 of the following year.

Implementation of management actions such as gear restrictions, fishing seasons, soak times, area closures, mesh size restrictions, FMPs, and ITPs (Sea Turtle ITP No. 16230) for other species have likely had a positive effect on reducing takes and minimizing the mortality associated with the incidental bycatch of Atlantic Sturgeon. The North Carolina management system has shown to effectively manage fisheries throughout the state and reduce incidental bycatch of finfish and protected species. Anchored gill-net restrictions implemented by the proclamations for the Sea Turtle ITP include: a range of 4 ISM to, and including, 6 ½ ISM for anchored large mesh gill nets; soak times limited to overnight soaks an hour before sunset to an hour after sunrise, Monday evenings through Friday mornings; anchored large mesh gill nets were restricted to a height of no more than 15 meshes, constructed with a lead core or leaded bottom line and without corks or floats other than needed for identification; a maximum of 2,000 yards of anchored large mesh gill nets authorized to be used per vessel; and maximum individual net (shot) length of 100 yards with a 25-yard break between shots (except for exempted areas including management unit C and portions of management unit A). Fishermen in the southern portion of the state were authorized to set anchored large mesh gill nets an extra day (Sunday evenings through Friday mornings) and use floats on nets, but were restricted to the use of a maximum of 1,000 yards of anchored large mesh gill net per fishing operation.

On November 21, 2016, NCDMF requested a minor modification to extend the future annual report deadlines for the Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) ITPs from January 31 to the last day in February. This extension was to benefit staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability. On January 4, 2017, the NMFS sent a letter to the NCDMF concurring with NCDMF's request for the minor modification encouraging staff to incorporate any further anticipated minor modifications into the application process for an updated ITP (Appendix A).

Outreach

NCDMF staff met with commercial industry leads on July 11, 2016 to discuss the current ITPs and options for moving forward with amendments. The North Carolina Fisheries Association (NCFA) requested this meeting in response to staff asking industry for their thoughts on potential ITP amendments and ways to further minimize sea turtle and Atlantic Sturgeon takes (in order to keep management units open longer under the current ITPs). During the meeting the NCFA discussed their interest in exploring gear modifications that are proven to reduce sea turtle interactions and would ultimately like to see the estuarine gill-net fishery managed under gear modifications (similar to the shrimp trawl fishery) without the constraints of the current ITPs. Staff from the NCDMF explained that while staff would be able to assist regarding the ITP

permit process, the NCFA should work with researchers with expertise in gear development and apply for a research Section 10 permit. In order to reach their ultimate goal, the NCFA would like to work on minimizing takes and amending the current ITPs by soliciting feedback from commercial gill netters throughout the state.

The NCFA scheduled two meetings on August 30 and 31, 2016 that focused on potential ITP amendments and ways to further minimize sea turtle and Sturgeon takes in the anchored gill-net fisheries. NCFA invited NCDMF staff to attend their meetings to hear the fishermen's feedback and to provide input on the feasibility of the fishermen's ideas. While discussing these meetings with the commercial industry leads, NCDMF staff raised the issue of the lack of fisherman compliance with the ITPs. NCFA fully agreed that it is a problem, and they plan on stressing the need for compliance at their meetings in order for this to be successful. Another comment made by the NCFA was they felt that the onboard observations by the NCDMF are very important. They also mentioned that the onboard observations are needed in order to collect biological information from the catch as opposed to just monitoring protected species interactions.

Staff from the NCDMF attended both meetings NCFA held in Wanchese, NC on August 30, 2016 and in Morehead City, NC on August 31, 2016. While most of the meetings were discussions amongst fishermen or directed at NCFA members, NCDMF staff answered and/or clarified questions as needed. The questions and/or concerns from fishermen included: confusion that self-reporting sea turtle and sturgeon takes was a requirement of the ITPs, that the definition of a take includes live interactions, that the amount of restrictions already in place on the anchored gill-net fisheries were too great, and the belief that any further restrictions would lead to their inability to make a livelihood in the industry. The North Carolina Watermen United (NCWU), which were in attendance at the August 30, 2016 meeting, sent the NCDMF a letter on September 2, 2016 listing many modifications that are already in place in the anchored gill-net fisheries, but suggests another "more-inclusive" meeting for further discussion (Appendix B). The NCFA sent the NCDMF a follow-up email on September 19, 2016 with questions and concerns following the meetings (Appendix C).

Observer Activity

There was turnover within the Observer Program with positions being filled as quickly as possible to maintain coverage. The Observer Program actively placed observers in areas where fishing effort was high and where known Atlantic Sturgeon and sea turtle interactions occur. There were closures during each season throughout the state due to Atlantic Sturgeon and sea turtle and interactions. When a management unit closes for a portion of time the observers are shifted to the open management units to increase coverage in those management units. The contact log, which includes different categories to place each contact that was made to a

fisherman, was beneficial for analyzing the type of contact that was being made and to see the number of observer trips that were obtained through the calling system.

There were multiple closures of various management units throughout the state in ITP Year 2016 (Table 4). Fishermen are more elusive to attempts by observers contacting them to set-up trips after proclamations enacting stricter regulations are implemented. Therefore, making it harder to obtain observer trips. No trips were obtained in management unit D1 during the spring 2016 season due to the management unit being closed for the latter portion of the spring 2016 season and minimal fishing effort while open. In the summer 2016 management unit A was open for only seven days before being closed to anchored large and small mesh gill nets for the duration of the summer 2016 season (Table 4). Therefore, no anchored small mesh trips were able to be obtained during this short time frame.

Compliance

Although ITP Year 2016 is the third year for the statewide ITP, fishermen are not as familiar with the Observer Program and requirements of the ITP as desired, so more time is needed to educate the industry. Alternative platform trips were employed in all management units more frequently throughout ITP Year 2016 in order to maintain observer coverage due to compliance issues with fishermen (i.e., not answering phone calls, not calling back). The required minimum 7% observer coverage is very difficult to achieve when observers must rely on alternative platform trips, as it requires two observers to obtain a trip. The NCDMF discussed the situation with industry leads to improve awareness and increase compliance.

There were no fisherman self-reported Atlantic Sturgeon takes during the winter 2015-2016, spring 2016, and summer 2016 seasons with only four self-reported takes during the fall 2015 season (Table 8). The NCDMF also discussed this situation with industry leads and have provided outreach to fishermen explaining the requirement in the ITP of fishermen self-reporting and further details on the subject to try and increase self-reporting throughout the industry as a whole.

The NCDMF Observer Program data were updated using the finalized 2015 TTP data in May 2016. The Annual Completion Report for the Atlantic Sturgeon ITP No. 18102 was completed for ITP Year 2015 and submitted in January 2016. Using the finalized 2015 data, Tables 1, 2, 7, and 8 from the Completion Report were updated to reflect the final estimates of observer coverage and Atlantic Sturgeon takes (Appendix D). The fall 2014 season was based on finalized 2014 TTP data and did not deviate from the previous report for both anchored large and small mesh gill nets. The winter 2014 – 2015 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in management units D and E. The winter 2014 – 2015 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management units C, D, and E. The spring 2015 season had an increase

in fishing trips for anchored large mesh gill nets than previously estimated in all management units except management units A and B. The spring 2015 season had no increase in fishing trips for anchored small mesh gill nets than previously estimated. The summer 2015 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in management units C and E. The summer 2015 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management units A, C and D. Annual estimated authorized Atlantic Sturgeon takes were recalculated for large and small mesh gill nets using the finalized 2015 TTP data. For each season and management unit for large mesh gill nets, the fishery remained below the annual estimated authorized Atlantic Sturgeon takes for all dispositions for ITP Year 2015. For each season and management unit for small mesh gill nets, the fishery remained below the annual estimated authorized Atlantic Sturgeon takes for all dispositions for ITP Year 2015 (Appendix D).

Based on finalized 2015 TTP data for December 2015 and preliminary TTP data for January and February 2016, NCDMF exceeded the authorized alive Atlantic Sturgeon takes from anchored large mesh gill nets in management unit A for the winter 2015 - 2016 season (Appendix E). Based on finalized TTP data averaged from 2011 through 2014, the estimated number of fishing trips (n = 895) for the winter 2015 – 2016 increased by 396 trips, increasing the overall season's estimated fishing trips to 1,291. The 158 estimated Atlantic Sturgeon takes were calculated based on the estimated fishing trips before the finalized 2015 data were available. The 276 estimated Atlantic Sturgeon takes were based on finalized December 2015 data increasing estimated takes by 118 fish. Based on finalized December 2015 data and preliminary January/February 2016 data, the anchored large mesh gill-net fishery for the winter 2015 – 2016 season in management unit A went over the authorized takes for Atlantic Sturgeon by a total of 77 fish (Appendix E).

Based on finalized data for ITP Year 2015 and preliminary and finalized data for ITP Year 2016, the number of authorized Atlantic Sturgeon takes that were utilized by the anchored large and small mesh gill-net fisheries under the Atlantic Sturgeon ITP were analyzed to determine the percentage of unused takes for each ITP Year and therefore, remained in the populations of Atlantic Sturgeon. For ITP Year 2015, the percentage of authorized takes that were remaining for the anchored large mesh gill nets was calculated for estimated takes (75.8% alive, 95.7% dead) and observed takes (95.3% alive, 100.0% dead) statewide. The percentage of authorized takes that were remaining in ITP Year 2015 for anchored small mesh gill nets were calculated for estimated takes (86.8% alive, 100.0% dead) and observed takes (78.0% alive, 92.3% dead) statewide. Overall, for both anchored large and small mesh gill nets the percentage of estimated takes that remained for ITP Year 2015 (78.5% alive, 96.0% dead) and observed takes remaining (88.6% alive, 96.4% dead) was much greater than the percent of takes utilized. The analyses for ITP Year 2016 depicted very similar results. For ITP Year 2016, the percentage of authorized takes that were remaining for the anchored large mesh gill nets were calculated for estimated

takes (72.7% alive, 93.5% dead) and observed takes (89.1% alive, 86.7% dead) statewide. The percentage of authorized takes that were remaining in ITP Year 2016 for anchored small mesh gill nets were calculated for estimated takes (83.7% alive, 100.0% dead) and observed takes (97.6% alive, 100.0% dead) statewide. Overall, for both anchored large and small mesh gill nets the percent of estimated takes that remained for ITP Year 2016 (75.3% alive, 94.0% dead) and observed takes remaining (92.4% alive, 92.9% dead) was much greater than the percent of takes utilized. The data illustrate that while there are instances where the NCDMF have exceeded authorized Atlantic Sturgeon takes for specific seasons, overall the management of the Atlantic Sturgeon ITP has led to much less sturgeon being utilized from the number of overall authorized takes. This is also due to management related to the Sea Turtle ITP as any closure of anchored large or small mesh gill nets caused from sea turtle interactions would in turn lead to infrequent sturgeon interactions due to gear being out of the water for long periods of time.

Estuarine Gill Net Permit

As per the ITP the NCDMF established an EGNP to register all fishermen participating in the anchored large and small mesh gill-net fisheries via proclamation M-24-2014 on September 1, 2014. The ITP's Implementing Agreement states that the NCDMF has two years to implement the EGNP to serve as a certificate of inclusion for fishermen. However, due to the compliance issues the NCDMF was facing during ITP year 2014, the EGNP was developed and became effective September 1, 2014 (one year from ITP issuance). The multifaceted EGNP was enacted to attempt to allow the NCDMF to closely monitor compliance. The EGNP is also used as a tool to improve fishermen compliance by including Specific Permit Conditions requiring fishermen to allow the NCDMF observers aboard their vessels to monitor catches. Failure to comply with this permit provision can result in a permit suspension. There were 2,849 EGNPs issued for Fiscal Year 2016 (July 1, 2015 – June 30, 2016).

An issue that was discovered during the spring 2015 season was the appeal process for the NCDMF's permitting system, which includes the EGNP. General Counsel for the North Carolina Department of Environmental Quality (NCDEQ) deliberated the situation during which time NOVs were not issued (i.e., summer 2015 season). Their findings determined that any NOV issued by the NCDMF for permits can be appealed by the fisherman. However, the permit will still be suspended for the duration of the violation (i.e., 10-days, 30-days, 6-months). The NOV process has since come under scrutiny for certain Specific Permit Conditions outlined in the EGNP. Therefore, the effectiveness of the NCDMF utilizing the EGNP as a compliance tool for the ITP is uncertain. The EGNP and NOV process will be examined by NCDMF during ITP Year 2017 to determine the best approach moving forward.

LITERATURE CITED

Atlantic States Marine Fisheries Commission (ASMFC). 1998. Amendment 1 to the Interstate Fishery Management Plan for Atlantic Sturgeon. July 1998. Atlantic States Marine Fisheries Commission, Washington D.C. Fishery Management Report No. 31. 42 pp.

Atlantic Sturgeon Status Review Team (ASSRT). 2007. Status review of Atlantic Sturgeon (*Acispenser oxyrinchus oxyrinchus*). Report to the National Marine Fisheries Service, Northeast Regional Office. February 23, 2007. 174 pp.

Boyd, J.B. 2012. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2011 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2013. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2012 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2015a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2014 Section 10 ITP # 18102 (September 1, 2013 – August 31, 2014). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 21pp.

Boyd, J.B. 2015b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Fall 2015 Section 10 ITP # 16230 (September 1, 2015 – November 30, 2015). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 10pp.

Boyd, J.B. 2016a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2015 Section 10 ITP # 18102 (September 1, 2014 – August 31, 2015). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 39pp.

Boyd, J.B. 2016b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Spring 2016 Section 10 ITP # 16230 (March 1 – May 31, 2016). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 15pp.

Boyd, J.B. 2016c. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Summer 2016 Section 10 ITP # 16230 (June 1 – August 31, 2016). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 14pp.

Canty, A. and B. Ripley. 2015. boot: Bootstrap R (S-Plus) Functions. R package version 1.3-17.

Davison, A.C., and D.V. Hinkley. 1997. Bootstrap Methods and Their Applications. Cambridge University Press, Cambridge. ISBN 0-521-57391-2.

Efron, B., and R.J. Tibshirani. 1993. An introduction to the bootstrap. Chapman and Hall, New York. 436 pp.

ESA. 1973. Endangered Species Act, 1973.

Hoff, J.G. 1980. Review of the present status of the stocks of the Atlantic Sturgeon *Acipenser oxyrhynchus*, Mitchill. Prepared for the National Marine Fisheries Service, Northeast Region, Gloucester, Massachusetts.

Gearhart, J. 2001. Sea turtle bycatch monitoring of the 2000 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1259. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Gearhart, J. 2002. Sea turtle bycatch monitoring of the 2001 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1348. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 44pp.

Gearhart, J. 2003. Sea turtle bycatch monitoring of the 2002 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 39pp.

Kahnle, A.W. R.W. Laney, and B.J. Spear. 2005. Proceedings of the workshop on status and management of Atlantic Sturgeon. 3-4 November 2003, Raleigh, NC. ASMFC Special Report No. 84, Washington, D.C.

Murawski, S.A., and A.L. Pacheco. 1977. Biological and fisheries data on Atlantic Sturgeon, *Acipenser oxyrhynchus* (Mitchill). National Marine Fisheries Service Technical Series Report 10: 1–69.

Murphey, T. 2011. Sea turtle bycatch monitoring of the 2010 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 4pp.

National Marine Fisheries Service (NMFS). 1997a. Notice of Modification of List of Candidate Species. Federal Register 97: 18326 (14 July 1997):37560–37563.

NMFS. 1997b. 90-Day Finding for a Petition to List the Atlantic Sturgeon (*Acipenser oxyrhynchus oxyrhynchus*) in the United States as Endangered or Threatened. Federal Register 62:201 (17 October 1997): 54018–54020.

NMFS. 2004. Endangered and Threatened Species; Establishment of Species of Concern List, Addition of Species to Species of Concern List, description of Factors for Identifying Species of Concern, and Revision of Candidate Species List Under the Endangered Species Act. Federal Register 69: 73 (15 April 2004): 19975–19979.

NMFS. 2010. Endangered and Threatened Wildlife; Notice of 90-Day Finding on a Petition to List Atlantic Sturgeon as Threatened or Endangered under the Endangered Species Act (ESA). Federal Register 75:3 (6 January 2010): 838–841.

NMFS. 2012. Endangered and Threatened Wildlife and Plants; Final Listing Determinations for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*). Federal Register 77: 24 (6 February 2012): 5914–5982.

NMFS and USFWS (United States Fish and Wildlife Service). 1998. Status review of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. 126pp.

Price, B. 2004. Sea turtle bycatch monitoring of the 2003 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Price, B. 2005. Sea turtle bycatch monitoring of the 2004 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 33pp.

Price, B. 2006. Sea turtle bycatch monitoring of the 2005 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 31pp.

Price, B. 2007. Sea turtle bycatch monitoring of the 2006 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 21pp.

Price, B. 2008. Sea turtle bycatch monitoring of the 2007 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 25pp.

Price, B. 2009. Sea turtle bycatch monitoring of the 2008 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment.

Price, B. 2010. Sea turtle bycatch monitoring of the 2009 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 27pp.

R Core Team. 2015. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

SAS® 2004. SAS® 9.1 Language Reference: Dictionary, Volumes 1, 2, ,3 and 4. SAS Institute, Cary, NC.

TABLES

Table 1. Authorized and actual annual estimated incidental takes per fishing year (for a total of 10 years; the life of the permit) with confidence intervals (95%) using a bootstrap method based on observer data for coverage and Atlantic Sturgeon interaction levels in North Carolina's anchored large mesh (≥5.0 ISM) inshore gill net fishery for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Total Interactions			
		Authorized (Mortality) [1]		Actual All DPS [3]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	149 (6)	50 (2)	276 [115,566]	0
	Spring	460 (19)	154 (6)	42 [10,96]	29 [0,109]
	Summer	157 (6)	52 (2)	17 [0,34]	0
	Fall	838 (34)	279 (11)	250 [151,415]	10 [0,54]
B	Winter	2 (1)[2]	n/a	0	0
	Spring	1 (1)[2]	1 (0)	0	0
	Summer	4 (2)[2]	2 (0)	0	0
	Fall	17 (2)[2]	6 (0)	0	0
C	Winter	2 (1)[2]	n/a	0	0
	Spring	3 (1)[2]	1 (0)	0	0
	Summer	2 (1)[2]	1 (0)	0	0
	Fall	4 (2)[2]	2 (0)	4	1
D	Annual	8 (2)[2]	n/a	1	0
E	Annual	8 (2)[2]	n/a	2	1
Total		1,655 (80)	548 (21)	592	41

[1] Mortality estimates are included in the total authorized interactions (i.e., Management Unit A, Winter, Carolina DPS 149(6) means that out of 149 total interactions six are authorized to be mortalities.

[2] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were ≤ 5 mortality was one; if observed interactions were >5 mortality was two.

[3] Fin clip samples have been sent to the lab for genetic analysis. Confidence Intervals (95%) in brackets [ ].

Table 2. Authorized and actual annual estimated incidental takes per fishing year (for a total of 10 years; the life of the permit) with confidence intervals (95%) using a bootstrap method based on observer data for coverage and Atlantic Sturgeon interaction levels in North Carolina's anchored small mesh (<5.0 ISM) inshore gill net fishery for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Total Interactions			
		Authorized (Mortality) [1]		Actual All DPS [3]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	175 (14)	35 (3)	111 [29,283]	0
	Spring	219 (17)	44 (4)	0	0
	Summer	72 (6)	14 (1)	0	0
	Fall	103 (8)	21 (2)	0	0
B	Winter	2 (1)[2]	n/a	0	0
	Spring	6 (2)[2]	1 (0)	1	0
	Summer	3 (1)[2]	1 (0)	0	0
	Fall	3 (1)[2]	1 (0)	0	0
C	Winter	2 (1)[2]	n/a	0	0
	Spring	2 (1)[2]	n/a	0	0
	Summer	2 (1)[2]	n/a	0	0
	Fall	2 (1)[2]	n/a	0	0
D	Annual	8 (2)[2]	n/a	0	0
E	Annual	8 (2)[2]	n/a	0	0
Total		607 (58)	117 (10)	112	0

[1] Mortality estimates are included in the total authorized interactions (i.e., Management Unit A, Winter, Carolina DPS 175(14) means that out of 175 total interactions 14 are authorized to be mortalities.

[2] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were $\leq$ 5 mortality was one; if observed interactions were >5 mortality was two.

[3] Fin clip samples have been sent to the lab for genetic analysis. Confidence Intervals (95%) in brackets [ ].

Table 3. Categories and descriptions of fisherman responses for the Observer Program's contact logs used for analysis.

Categories	Category description
1	Left message with someone else
2	Not fishing general
3	Fishing other gear
4	Not fishing because of weather
5	Not fishing because of boat issues
6	Not fishing because of medical issues
7	Booked trip
8	Hung up, got angry, trip refused
9	Call back later time/date
10	Saw in person
11	Disconnected
12	Wrong number
13	No answer
14	No answer, left voicemail

Table 4. Regulations for management units by date and regulation change for anchored large and small mesh gill nets for ITP Year 2016 (September 1, 2015 - August 31, 2016).

Year	Date(s)	Regulation change
2015	Sept 1	Management unit A opened to anchored large and small mesh gill nets for the new ITP Year 2016 for the western part of the sound and Currituck Sound. All the eastern/southern areas (Croatan and Roanoke Sounds) will remain closed until early October to minimize interactions with sea turtles (M-13-2015).
2015	Sept 1	Management unit C opened to anchored large and small mesh gill nets for the new ITP Year 2016 (M-14-2015).
2015	Sept 1	Management unit E closed to anchored large mesh gill nets for the new ITP Year 2016 to minimize interactions with sea turtles (M-14-2015).
2015	Sept 1	Management unit B to remain closed to anchored large mesh gill nets to minimize interactions with sea turtles (M-14-2015).
2015	Sept 24	Management unit C closed to anchored large mesh gill nets due to approaching Atlantic Sturgeon authorized takes for the Fall 2015 Season (M-15-2015).
2015	Sept 30	Management unit A opened to anchored large and small mesh gill nets for the new ITP Year 2016 for the western part of the sound. All the eastern/southern areas (south and east of line from Alligator River to 158 Bridge including Croatan and Roanoke Sounds) will open with south of the 64 bridge having sea turtle restrictions (i.e., overnight soaks, 4-day fishing week) (M-16-2015).
2015	Sept 30	Management units B and E opened to anchored large mesh gill nets (M-17-2015).
2015	Oct 17	Management unit B subunits closed to anchored large mesh gill nets except the MGNRA due to sea turtle interactions (M-20-2015).
2015	Oct 17	Management unit A closed to anchored large and small mesh gill nets due to sea turtle interactions (M-21-2015).
2015	Oct 26	Portions of Management unit A opened to anchored large and small mesh gill nets (west of line from Laurel Point and Drummond Point and Currituck Sound (M-22-2015).
2015	Nov 2	Management unit A opened to anchored large and small mesh gill nets the western part of the sound. All the eastern/southern areas (south and east of line from Alligator River to 158 Bridge including Croatan and Roanoke Sounds) will remain closed (M-23-2015).
2015	Nov 2	Management unit D1 and remaining subunits of management unit B opened to anchored large mesh gill nets (M-24-2015).
2015	Nov 5	Management unit B closed to anchored large mesh gill nets due to sea turtle interactions (M-25-2015).
2015	Nov 23	Management unit A closed to the use of gill nets with a stretched mesh length of 4 inches and larger to minimize interactions with sea turtles (M-27-2015).
2015	Dec 1	The flounder commercial harvest season in internal coastal waters closed as per Amendment 1 to the Southern Flounder Fishery Management Plan (FF-56-2014).
2015	Dec 7	Portions of management unit A reopened to anchored large mesh gill nets (western) to allow fishermen to participate in the catfish fishery while maintaining a closure of all anchored gill nets in the eastern portions to avoid interactions with sea turtles (M-32-2015).
2016	Feb 15	Management units B and C opened to anchored large mesh gill nets (M-1-2016).

Table 4. (cont.).

Year	Date(s)	Regulation change
2016	Feb 22	Management unit E (in portions) implements gear restrictions for the shad fishery (M-1-2016).
2016	Mar 3	Management unit A implements additional gill net restrictions for Subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs (four nights per week (Tuesday - Friday) with 15 meshes deep, a maximum of 2,000 yards with 100-yards of continuous net, leaded bottom lines, prohibited to use floats, and must leave a space of 25-yards between sections of net; M-2-2016).
2016	April 10	Portions of Management unit E (upper Cape Fear River) closed to anchored large mesh gill nets due to Sturgeon interactions (M-5-2016).
2016	April 23	Management unit A closed to anchored large mesh gill nets for the remainder of the spring 2016 season due to reaching authorized dead Atlantic Sturgeon takes (M-6-2016).
2016	May 4	Management unit E closed to anchored small mesh gill nets for remainder of ITP Year 2016 due to reaching authorized sea turtle takes (M-8-2016).
2016	May 9	Management unit D1 closed to anchored large mesh gill nets (proclamation M-9-2016).**Annual ITP closure***
2016	June 1	Portions of management unit A opened to anchored large mesh gill nets (western) while maintaining closure of all anchored gill nets in the eastern portions to avoid interactions with sea turtles (M-10-2016).
2016	June 6	Management unit B closed to anchored large mesh gill nets for remainder of ITP Year 2016 due to reaching authorized sea turtle takes (M-12-2016).
2016	June 7	Management unit A closed to anchored large and small mesh gill nets for remainder of ITP Year 2016 due to reaching authorized sea turtle takes (M-13-2016).

Table 5. Observer coverage calculated from previous year's trip ticket data and observer data for anchored large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Large Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage (%) [3]
Fall 2015	A	2,258	205	9.1
	B	424	63	14.9
	C	366	58	15.8
	D	327	34	10.4
	E	518	36	6.9
Winter 2015-2016	A	1,263	52	4.1
	B	101	0	0.0
	C	136	13	9.5
	D	1	0	0.0
	E	43	15	35.0
Spring 2016	A	1,351	138	10.2
	B	568	38	6.7
	C	878	71	8.1
	D	92	3	3.3
	E	279	52	18.7
Summer 2016	A	25	5	20.0
	B	13	3	23.1
	C	653	58	8.9
	D	125	21	16.8
	E	488	98	20.1
Total		9,910	963	9.7

[1] Final trip ticket data for 2015 (September - December) and preliminary trip ticket data for 2016 (January - August)

[2] Table 4 contains all of the openings and closings for each management unit

[3] Based on final trips for 2015 (September - December) and estimated trips for 2016 (January - August) compared to observer large mesh trips

Table 6. Observer coverage calculated from previous year's trip ticket data and observer data for anchored small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Small Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage (%) [3]
Fall 2015	A	358	10	2.8
	B	706	9	1.3
	C	95	7	7.4
	D	221	24	10.9
	E	547	29	5.3
Winter 2015-2016	A	1,275	50	3.9
	B	486	3	0.6
	C	145	9	6.2
	D	62	1	1.6
	E	103	9	8.7
Spring 2016	A	1,311	29	2.2
	B	1,295	28	2.2
	C	263	7	2.7
	D	81	7	8.6
	E	201	10	5.0
Summer 2016	A	17	0	0.0
	B	1,035	7	0.7
	C	363	7	1.9
	D	78	4	5.1
	E	n/a	n/a	n/a
Total		8,642	250	2.9

[1] Final trip ticket data for 2015 (September - December) and preliminary trip ticket data for 2016 (January - August)

[2] Table 4 contains all of the openings and closings for each management unit

[3] Based on final trips for 2015 (September - December) and estimated trips for 2016 (January - August) compared to observer small mesh trips

Table 7. Summary of observed Atlantic Sturgeon interactions in anchored large and small mesh gill nets through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

						Tag	Length	
Date	Management Unit	Latitude	Longitude	Species	Disposition	PIT	Total	Fork
9/2/2015	A	36.00157	76.00360	Atlantic	alive	982.000364298230	647	546
9/2/2015	C	35.00111	76.01016	Atlantic	alive	989.001001951691	548	501
9/9/2015	A	35.01576	76.00983	Atlantic	alive	989.001001951732	612	550
9/9/2015	A	35.01576	76.00987	Atlantic	alive	n/a	n/a	n/a
9/16/2015	A	35.01632	76.00495	Atlantic	alive	n/a	1016	n/a
9/16/2015	A	35.01633	76.00495	Atlantic	alive	n/a	863	n/a
9/16/2015	A	36.00005	76.00403	Atlantic	alive	n/a	635	n/a
9/16/2015	A	36.00005	76.00403	Atlantic	alive	n/a	812	n/a
9/16/2015	A	36.00003	76.00402	Atlantic	alive	n/a	838	n/a
9/16/2015	A	36.00001	76.00402	Atlantic	alive	n/a	787	n/a
9/16/2015	A	36.00001	76.00402	Atlantic	alive	n/a	711	n/a
9/17/2015	A	35.01662	76.00650	Atlantic	alive	989.001001951672	n/a	n/a
9/17/2015	A	36.00012	76.00660	Atlantic	alive	989.001001951721	n/a	n/a
9/18/2015	A	36.00556	75.01437	Atlantic	alive	982.000364306141	n/a	n/a
9/22/2015	C	35.00817	76.01642	Atlantic	dead	n/a	740	640
9/22/2015	A	35.01625	76.00756	Atlantic	alive	n/a	n/a	n/a
9/22/2015	C	35.00492	76.00887	Atlantic	alive	989.001001952740	747	635
9/22/2015	C	35.00821	76.01648	Atlantic	alive	982.000364297817	650	550
9/22/2015	C	35.00818	76.01644	Atlantic	alive	982.000364303779	740	640
9/24/2015	D	34.01265	76.01272	Atlantic	alive	900.236000056715	800	720
10/8/2015	A	35.01640	76.00518	Atlantic	alive	n/a	863	n/a
10/15/2015	A	35.01594	76.00998	Atlantic	alive	989.001001951694	495	425
10/27/2015	A	35.01654	76.00971	Atlantic	alive	982.000364297023	880	820
10/28/2015	A	35.01649	76.01135	Atlantic	alive	989.001001951715	460	415
11/3/2015	A	35.01642	76.00738	Atlantic	alive	989.001001951724	485	452
11/4/2015	A	36.00150	76.00492	Atlantic	alive	989.001001951704	900	n/a
11/6/2015	A	36.00137	76.00486	Atlantic	alive	989.001001951732	660	615
11/10/2015	A	35.01659	76.00992	Atlantic	alive	989.001001951757	470	425
11/10/2015	A	35.01658	76.00999	Atlantic	alive	n/a	470	412
11/10/2015	A	35.01658	76.00999	Atlantic	alive	n/a	995	905
11/10/2015	A	36.00160	76.00335	Atlantic	alive	989.001001951906	830	720
11/10/2015	A	35.01659	76.00995	Atlantic	dead	n/a	985	905
11/11/2015	A	36.00008	76.00413	Atlantic	alive	n/a	990	n/a
11/16/2015	A	35.01589	76.00944	Atlantic	alive	989.001001951760	650	560
11/18/2015	A	36.00106	76.00658	Atlantic	alive	982.000364303215	514	458
11/19/2015	A	35.01655	76.00452	Atlantic	alive	n/a	965	n/a
12/15/2015	A	35.01639	76.00532	Atlantic	alive	n/a	533	n/a

Table 7. (cont.).

Date	Management Unit	Latitude	Longitude	Species	Disposition	Tag	Length	
						PIT	Total	Fork
12/16/2015	A	35.01621	76.01042	Atlantic	alive	989.001001951738	500	400
12/16/2015	A	35.01618	76.01033	Atlantic	alive	989.001001951678	935	890
12/16/2015	A	35.01615	76.00595	Atlantic	alive	n/a	533	n/a
12/16/2015	A	35.01616	76.00594	Atlantic	alive	n/a	990	n/a
12/17/2015	A	35.01625	76.01043	Atlantic	alive	982.000364306521	780	660
12/20/2015	A	35.01649	76.00537	Atlantic	alive	n/a	610	n/a
1/20/2016	A	36.01822	76.43317	Atlantic [1]	alive	982.000364306519	560	495
1/25/2016	A	36.07987	76.09834	Atlantic [1]	alive	989.001001951695	510	480
1/26/2016	A	36.05781	76.37851	Atlantic	alive	982.000364297003	623	550
1/28/2016	A	36.01865	76.42854	Atlantic [1]	alive	982.000364297767	690	605
2/17/2016	A	36.04696	76.35809	Atlantic [1]	alive	982.000364296969	703	619
2/17/2016	A	36.02694	76.39425	Atlantic	alive	989.001001951748	505	473
2/17/2016	A	36.02661	76.39653	Atlantic	alive	989.00100716244	770	660
3/1/2016	A	36.08105	76.30213	Atlantic	dead	989.001000716268	660	590
3/13/2016	A	36.00870	76.49533	Atlantic	alive	989.001001952760	968	856
3/14/2016	A	36.07507	76.36586	Atlantic	alive	989.001001952767	1140	1080
3/23/2016	A	36.00745	76.42352	Atlantic	alive	989.001001952734	650	550
3/24/2016	A	36.02299	76.43405	Atlantic	alive	989.001001952792	680	610
3/29/2016	B	34.87338	76.36731	Atlantic [1]	alive	n/a	n/a	n/a
4/7/2016	E	34.28043	78.00510	Shortnose	alive	989.001001951742	634	558
4/7/2016	E	34.28043	78.00510	Atlantic	alive	989.001001951687	751	689
4/7/2016	E	34.28043	78.00510	Atlantic	alive	989.001001951701	782	702
4/7/2016	E	34.28043	78.00510	Atlantic	dead	989.001001951685	928	843
4/7/2016	E	34.26313	77.98923	Atlantic	alive	989.001001952700	711	601
4/19/2016	A	35.98355	76.23595	Atlantic	dead	n/a	813	n/a
6/6/2016	A	36.16510	76.06331	Atlantic	alive	985.121014347782	700	590

[1] Indicates small mesh gear

Table 8. Summary of reported Atlantic Sturgeon interactions in anchored large mesh gill nets through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

						Length	
Date	Management Unit	Latitude	Longitude	Species	Disposition	Total	Fork
9/2/2015	C	35.48338	76.98334	Atlantic	alive	749	648
9/3/2015	C	35.48343	76.98338	Atlantic	alive	724	648
9/3/2015	C	35.48342	76.98337	Atlantic	alive	502	438
11/4/2015	D	n/a	n/a	Atlantic	alive	n/a	n/a

Table 9. Number of gill-net checks made and citations issued by Marine Patrol for large and small mesh gill nets by season during ITP Year 2016 (September 1, 2015 - August 31, 2016).

Season	# Gill Net Checks	# Citations
Fall 2015	909	38
Winter 2015-2016	127	10
Spring 2016	286	16
Summer 2016	283	0
Total	1,605	64

Table 10. Citations written by Marine Patrol for large and small mesh gill nets by season and violation code during ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Violation		
Season	Date	Code	Description
Fall 2015	9/7/2015	NETG29	RCGL gear without proper buoys
	9/10/2015	NETG01	Leave gill net in coastal waters unattended
	9/10/2015	NETG37	Leave small mesh gill nets unattended
	9/11/2015	NETG03	Using gill net with improper buoys or identification
	9/12/2015	NETG22	Improperly set gill net
	9/17/2015	NETG09	Gill net set too close to bridge
	9/21/2015	NETG03	Using gill net with improper buoys or identification
	9/29/2015	NETG01	Leave gill net in coastal waters unattended
	10/7/2015	NETG03	Using gill net with improper buoys or identification
	10/7/2015	NETG29	RCGL gear without proper buoys
	10/9/2015	NETG22	Improperly set gill net
	10/9/2015	NETG39	Use large mesh gill nets more than 15 meshes in height and w/out lead core or leaded bottom
	10/9/2015	NETG44	Use large mesh gill nets w/out leaving a space of at least 25 yard between separate lengths
	10/10/2015	NETG22	Improperly set gill net
	10/13/2015	NETG03	Using gill net with improper buoys or identification
	10/13/2015	NETG34	Use unattended gill net w/mesh less than 5" in commercial operation from May 1 through Nov
	10/14/2015	NETG29	RCGL gear without proper buoys
	10/15/2015	NETG01	Leave gill net in coastal waters unattended
	10/15/2015	NETG04	Leave gill net in waters when could not be legally fished
	10/17/2015	NETG03	Using gill net with improper buoys or identification
	10/18/2015	NETG29	RCGL gear without proper buoys
	10/20/2015	NETG03	Using gill net with improper buoys or identification
	10/21/2015	NETG01	Leave gill net in coastal waters unattended
	10/21/2015	NETG02	Using gill net without buoys or identification
	10/23/2015	NETG03	Using gill net with improper buoys or identification
	10/23/2015	NETG29	RCGL gear without proper buoys

Table 10. (cont.).

Season	Violation		
	Date	Code	Description
Fall 2015	10/30/2015	NETG03	Using gill net with improper buoys or identification
	11/6/2015	NETG03	Using gill net with improper buoys or identification
	11/6/2015	NETG05	Use a stationery gill net in channel of ICWW
	11/7/2015	NETG01	Leave gill net in coastal waters unattended
	11/7/2015	NETG01	Leave gill net in coastal waters unattended
	11/11/2015	NETG29	RCGL gear without proper buoys
	11/11/2015	NETG46	Set or retrieve large mesh gill nets later than one hour after sunrise on Tuesday through Friday
	11/11/2015	NETG53	Use large mesh gill net with corks or floats on top line
	11/12/2015	NETG01	Leave gill net in coastal waters unattended
	11/14/2015	NETG03	Using gill net with improper buoys or identification
	11/23/2015	NETG12	Net in middle third of marked navigational channel
	11/24/2015	NETG03	Using gill net with improper buoys or identification
Winter 2015-2016	12/10/2015	NETG02	Using gill net without buoys or identification
	01/02/2016	NETG04	Leave gill net in waters when could not be legally fished
	01/02/2016	NETG04	Leave gill net in waters when could not be legally fished
	01/02/2016	NETG04	Leave gill net in waters when could not be legally fished
	01/14/2016	NETG04	Leave gill net in waters when could not be legally fished
	01/16/2016	NETG32	Set gill net w/stretched mesh of 5 inches or greater without proper tie downs
	02/11/2016	NETG03	Using gill net with improper buoys or identification
	02/18/2016	NETG10	Gill net with illegal mesh size
	02/23/2016	NETG22	Improperly set gill net
	02/23/2016	NETG06	Gill net causing hazard to navigation
Spring 2016	3/11/2016	NETG03	Using gill net with improper buoys or identification
	3/27/2016	NETG10	Gill net with illegal mesh size
	4/8/2016	NETG03	Using gill net with improper buoys or identification
	4/8/2016	NETG03	Using gill net with improper buoys or identification
	4/8/2016	NETG10	Gill net with illegal mesh size

Table 11. Contacts attempted (n = 11,993) by the observers trying to set up trips by season categorized by contact type (0-14) and by total number, percent for each season, and percent for the entire ITP Year 2016 for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Categories (%) [1]														
Season	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Fall 2015	155	897	286	115	60	85	263	17	564	68	160	40	452	1,451	4,613
	3.4%	19.4%	6.2%	2.5%	1.3%	1.8%	5.7%	0.4%	12.2%	1.5%	3.5%	0.9%	9.8%	31.5%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Winter 2015 - 2016	8	72	4	1	3	4	4	2	15	4	8	3	20	67	215
	3.7%	33.5%	1.9%	0.5%	1.4%	1.9%	1.9%	0.9%	7.0%	1.9%	3.7%	1.4%	9.3%	31.2%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Spring 2016	104	727	192	11	43	30	110	6	336	72	126	22	419	971	3,169
	3.3%	22.9%	6.1%	0.3%	1.4%	0.9%	3.5%	0.2%	10.6%	2.3%	4.0%	0.7%	13.2%	30.6%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Summer 2016	129	794	247	27	45	72	100	15	366	26	245	47	547	1,336	3,996
	3.2%	19.9%	6.2%	0.7%	1.1%	1.8%	2.5%	0.4%	9.2%	0.7%	6.1%	1.2%	13.7%	33.4%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Total	396	2,490	729	154	151	191	477	40	1,281	170	539	112	1,438	3,825	11,993
	3.3%	20.8%	6.1%	1.3%	1.3%	1.6%	4.0%	0.3%	10.7%	1.4%	4.5%	0.9%	12.0%	31.9%	100.0%

[1] Contact type categories: 1) Left message with someone else 2) Not fishing general 3) Fishing other gear 4) Not fishing because of weather 5) Not fishing because of boat issues 6) Not fishing because of medical issues 7) Booked trip 8) Hung up, got angry, trip refused 9) Call back later time/date 10) Saw in person 11) Disconnected 12) Wrong number 13) No answer 14) No answer, left voicemail

Table 12. Notice of Violations issued by season, date and violation code for the Estuarine Gill Net Permit for ITP Year 2016 (September 1, 2015 - August 31, 2016).

Season	Date	Code	Description
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/22/2015	EGNP11	Failure to attend nets
Fall 2015	10/22/2015	EGNP12	Failure to return observers' phone calls within a 14-day period
Fall 2015	10/22/2015	EGNP25	Refuse to allow fisheries observers onboard or collect data
Fall 2015	10/22/2015	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall 2015	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Fall 2015	11/5/2015	EGNP11	Failure to attend nets
Fall 2015	11/17/2015	EGNP09	Failure to set or retrieve nets in accordance with time restrictions
Winter 2015-2016	1/6/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Winter 2015-2016	1/6/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Winter 2015-2016	1/6/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Winter 2015-2016	2/2/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Winter 2015-2016	2/2/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Winter 2015-2016	2/24/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Spring 2016	3/1/2016	EGNP10	Set more than the legal length of gill net
Spring 2016	5/4/2016	EGNP09	Failure to set or retrieve nets in accordance with time restrictions
Spring 2016	5/4/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Spring 2016	5/4/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Spring 2016	5/16/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Spring 2016	5/17/2016	EGNP25	Refuse to allow fisheries observers onboard or collect data

FIGURES

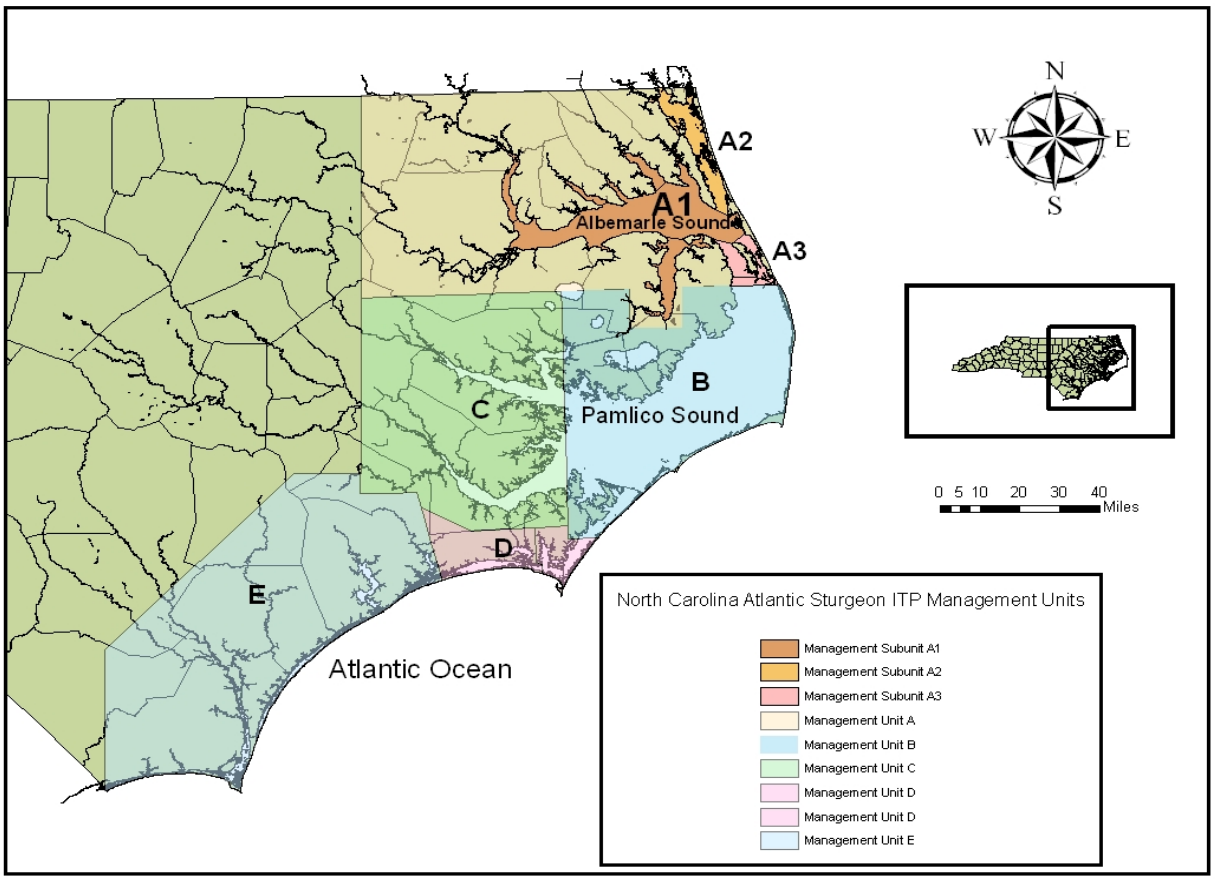


Figure 1. Management units (A1, A2, A3, B, C, D, and E) as outlined in the Conservation Plan and utilized by the Observer Program for ITP Year 2016 (September 1, 2015 – August 31, 2016).

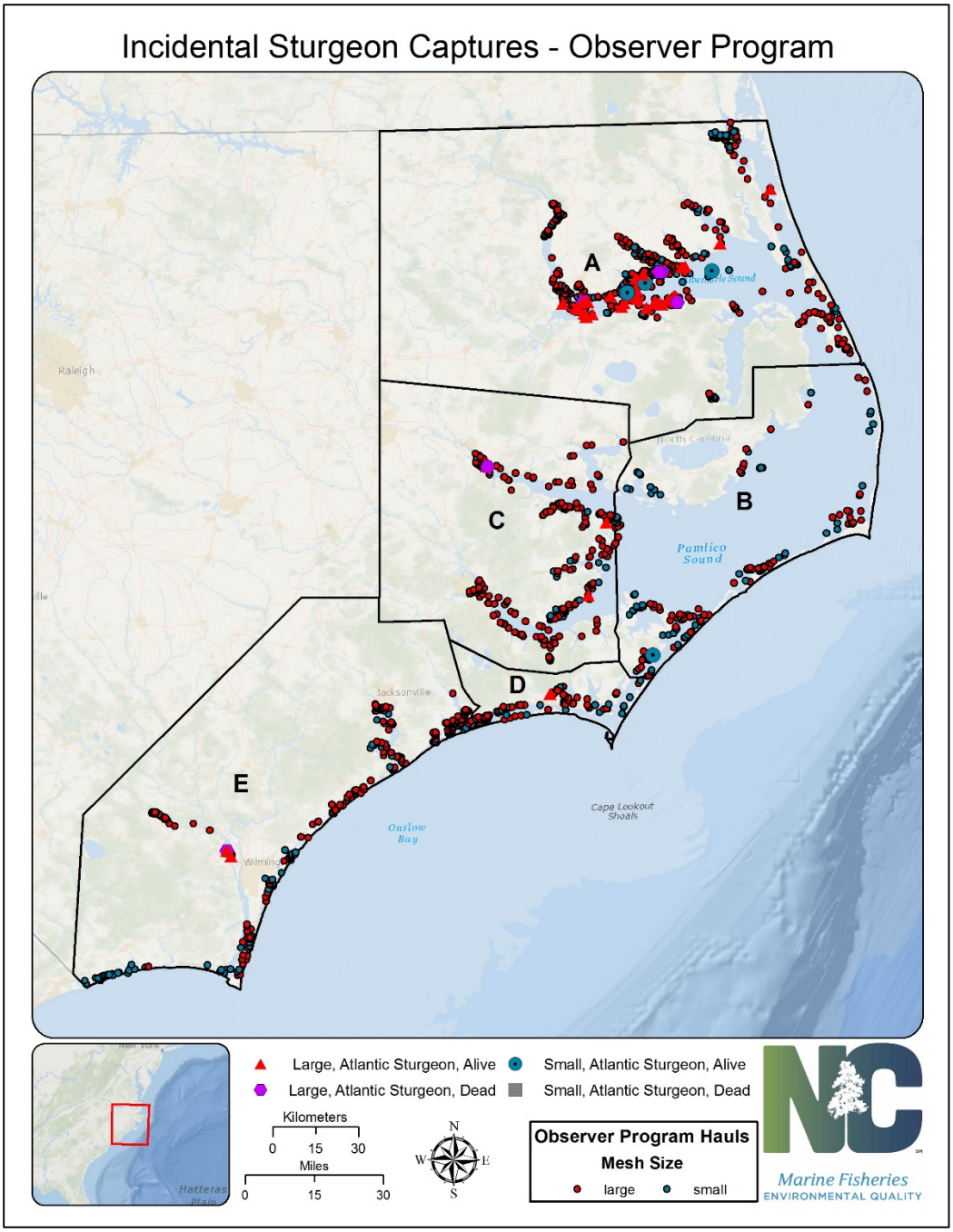


Figure 2. Atlantic Sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear throughout all management units for ITP Year 2016 (September 1, 2015 – August 31, 2016).

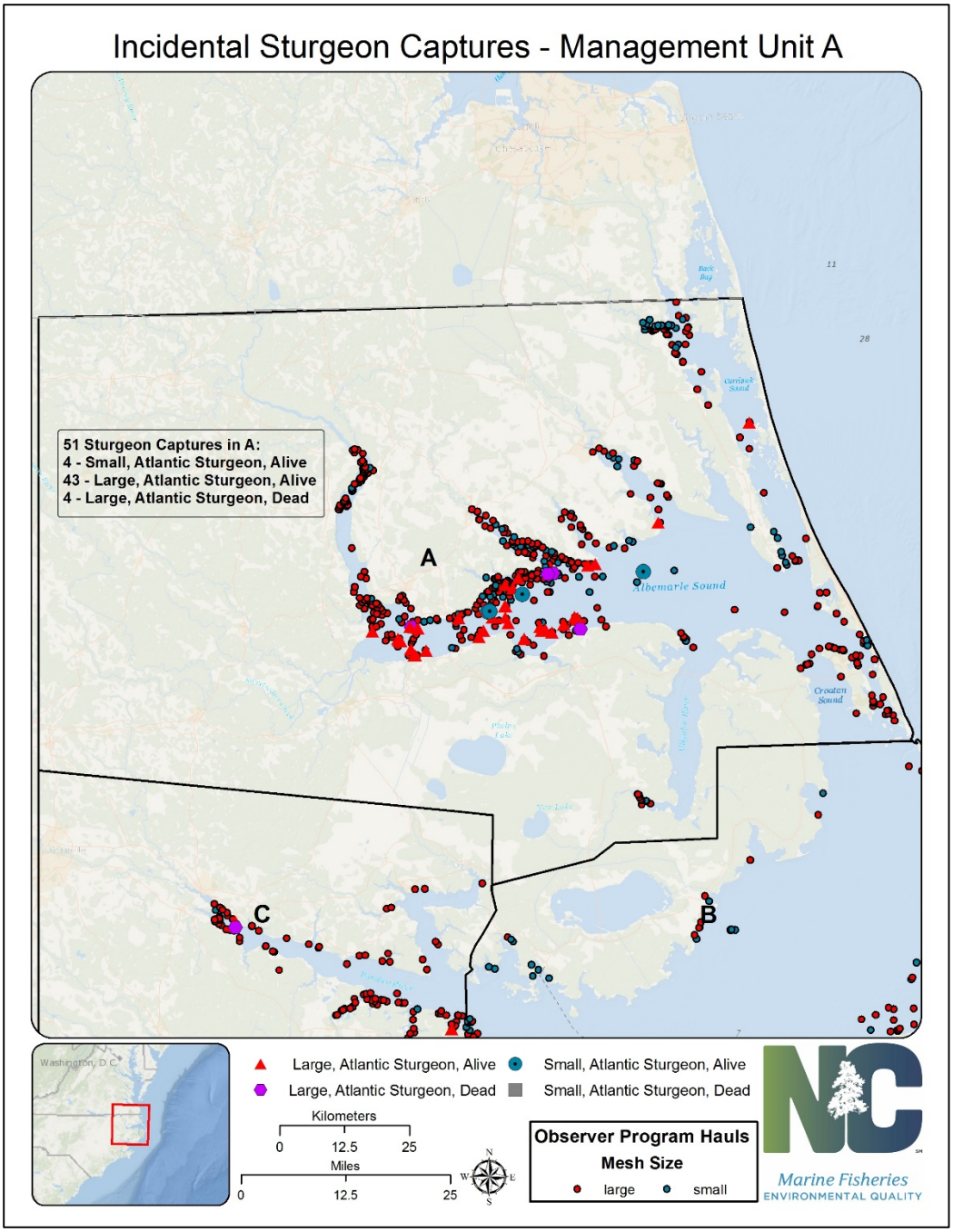


Figure 3. Atlantic Sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit A for ITP Year 2016 (September 1, 2015 – August 31, 2016).

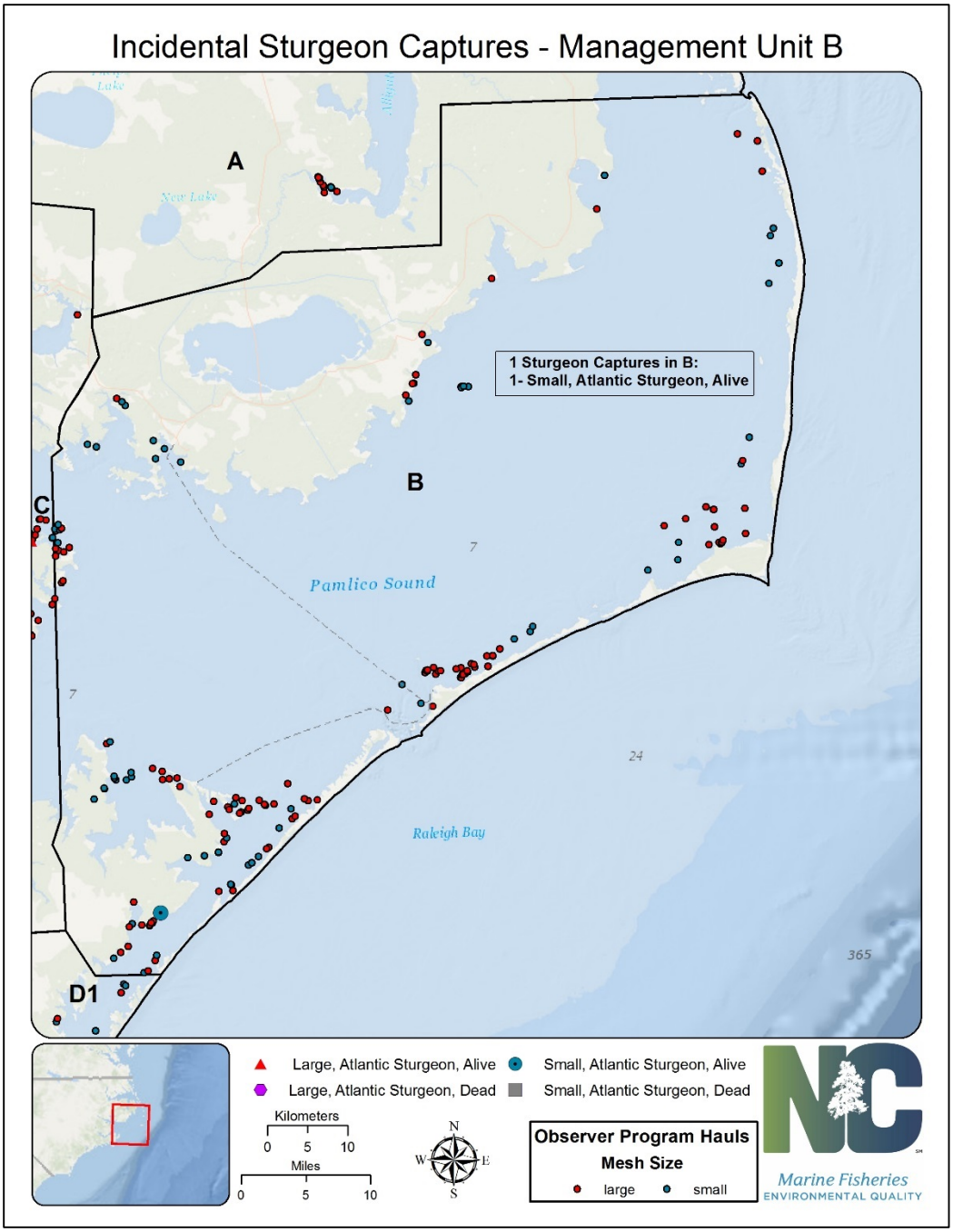


Figure 4. Atlantic Sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit B for ITP Year 2016 (September 1, 2015 – August 31, 2016).

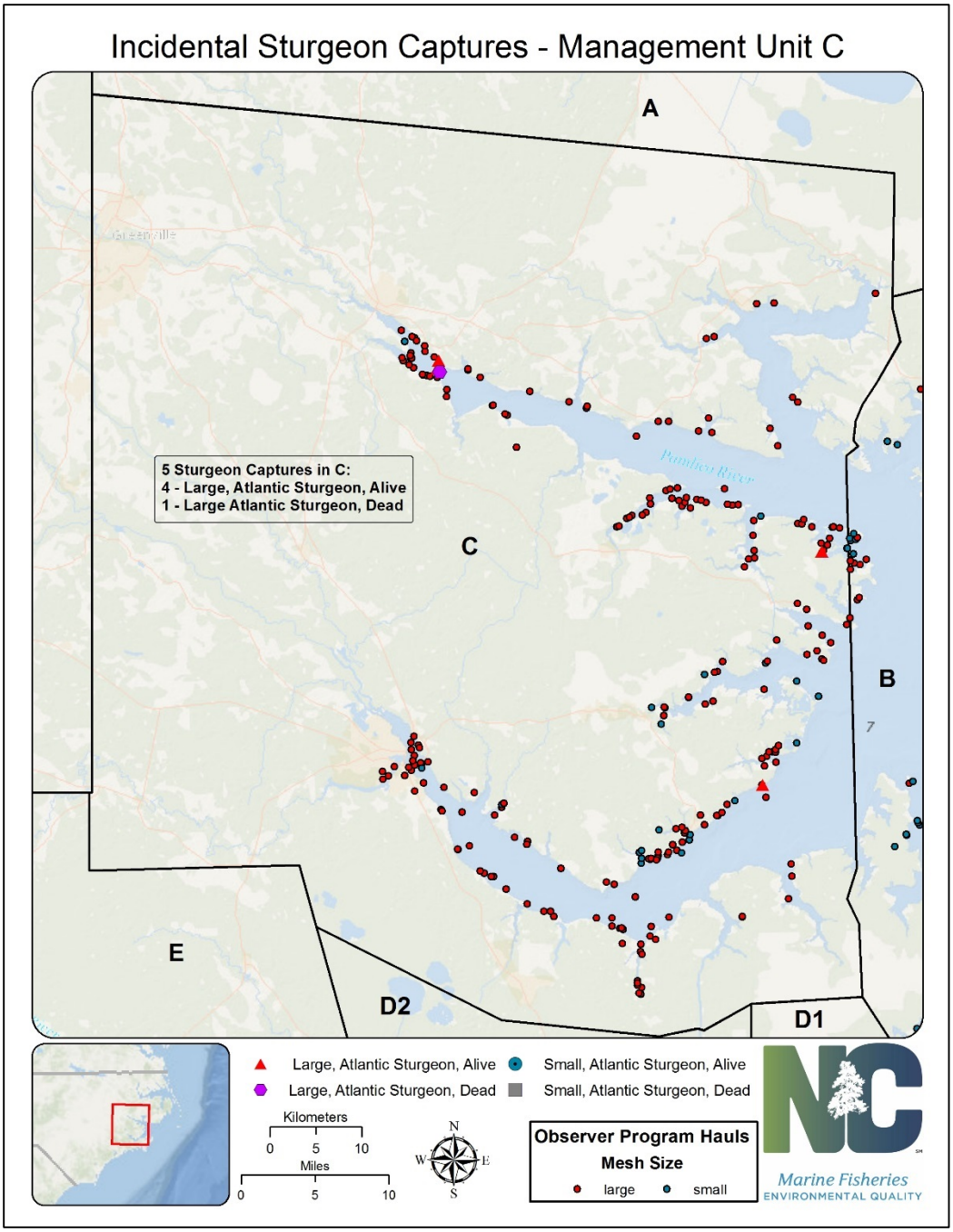


Figure 5. Atlantic Sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit C for ITP Year 2016 (September 1, 2015 – August 31, 2016).

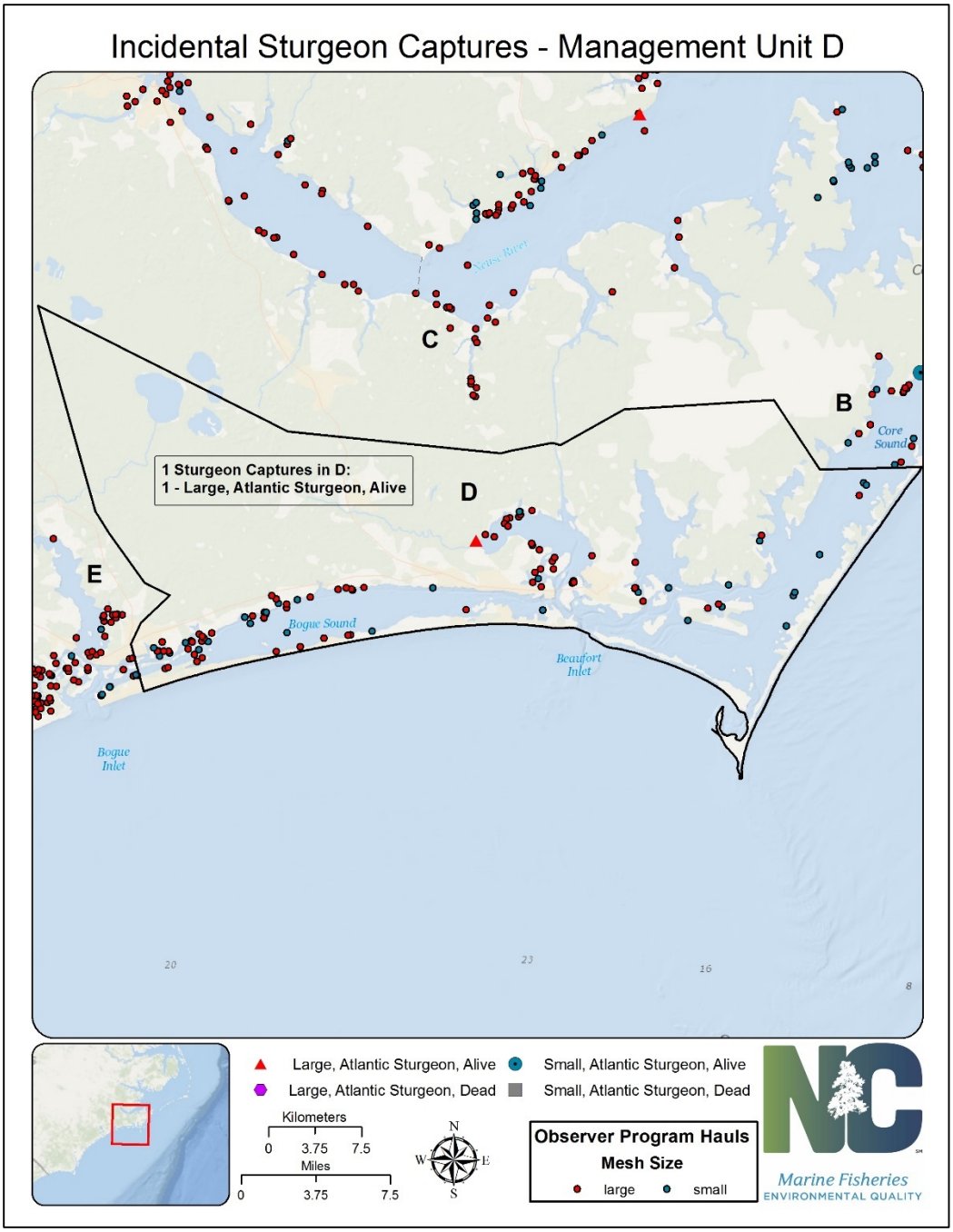


Figure 6. Atlantic Sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit D for ITP Year 2016 (September 1, 2015 – August 31, 2016).

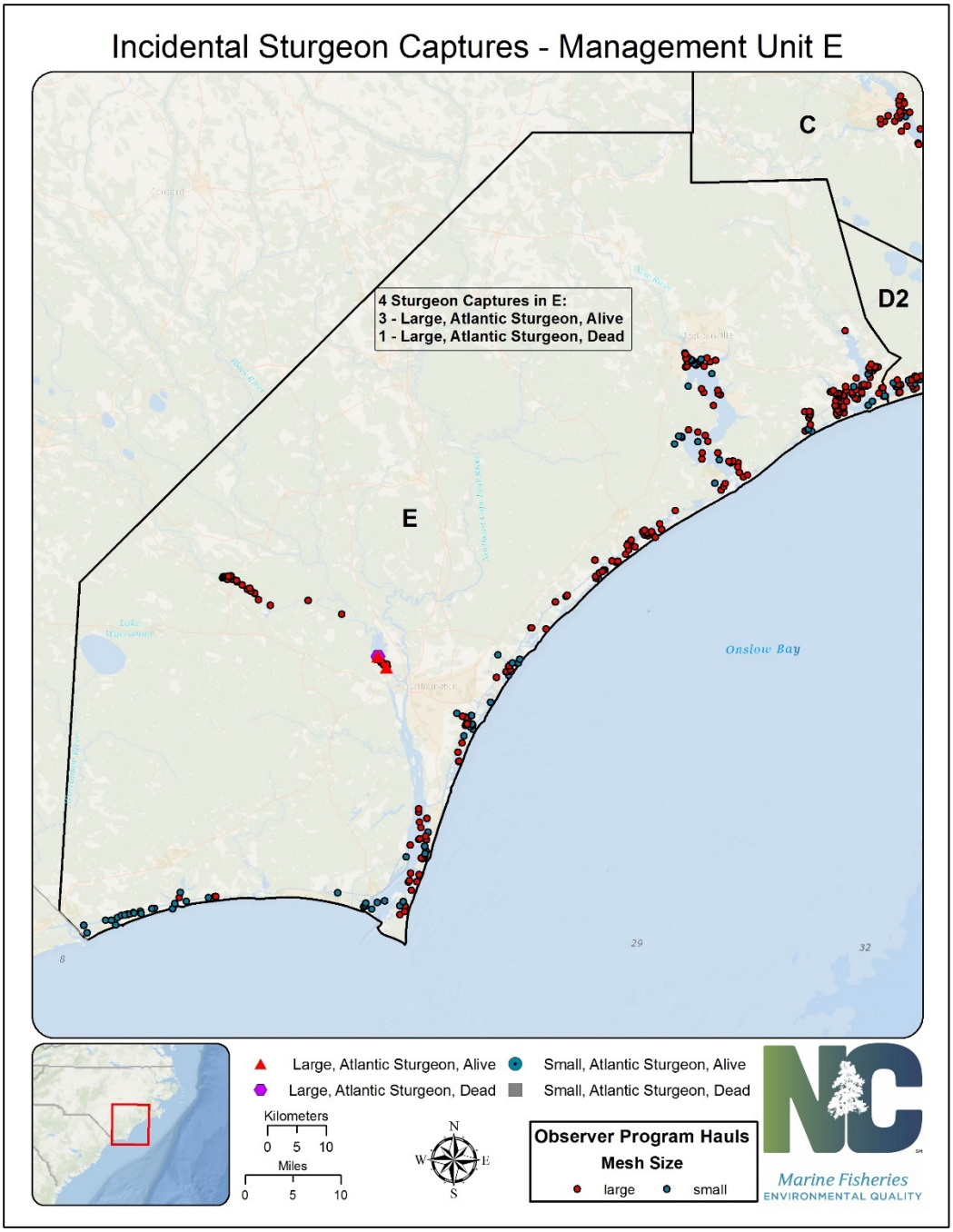


Figure 7. Atlantic Sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit E for ITP Year 2016 (September 1, 2015 – August 31, 2016).

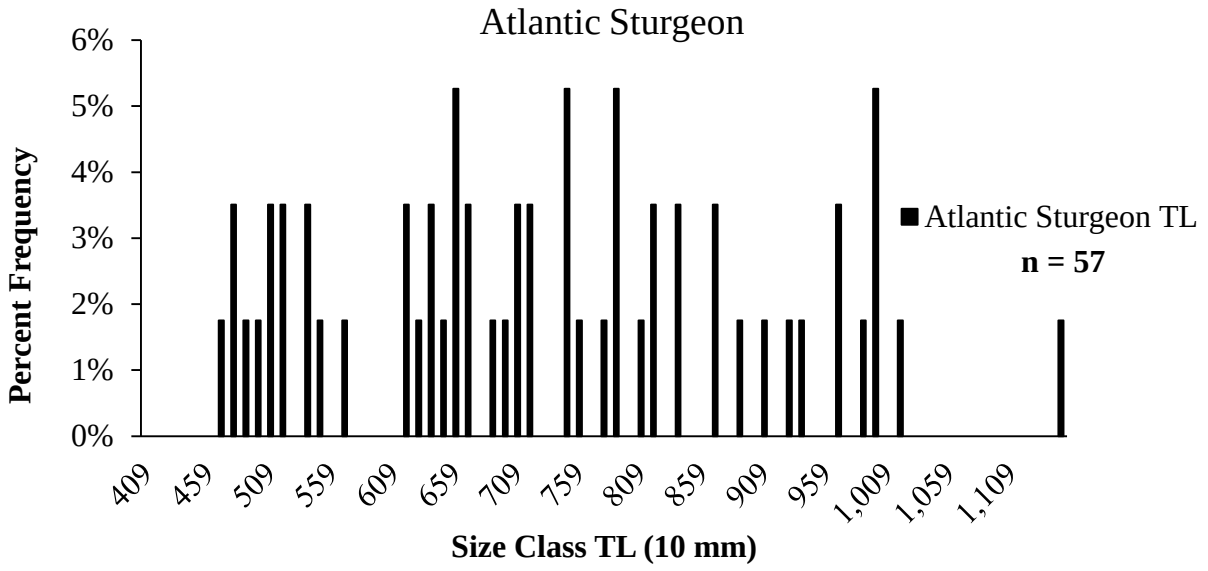


Figure 8. Length-frequency (total length) of observed incidental captures of Atlantic Sturgeon where measurements were obtained (n = 57) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2016 (September 1, 2015 – August 31, 2016).

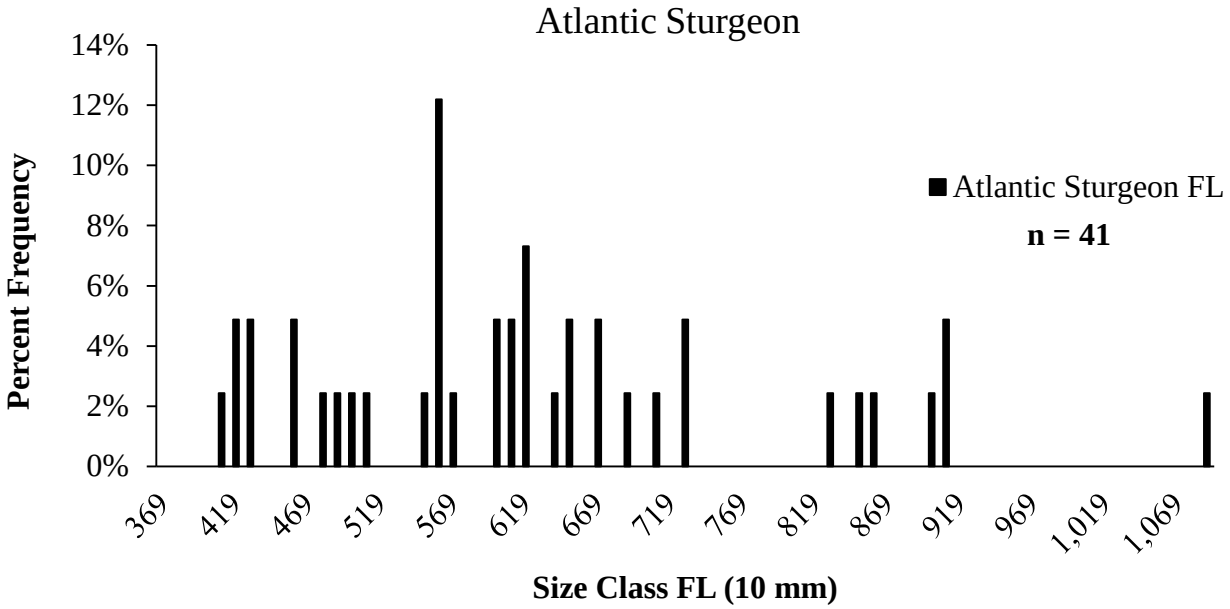


Figure 9. Length-frequency (fork length) of observed incidental captures of Atlantic Sturgeon where measurements were obtained (n = 41) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2016 (September 1, 2015 – August 31, 2016).

APPENDIX A

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JAN 4 2017

Braxton C. Davis
Director, North Carolina Division of Marine Fisheries
3441 Arendell Street
P.O. Box 769
Morehead City, North Carolina 28557

Dear Mr. Davis:

On November 21, 2016, the North Carolina Division of Marine Fisheries (NCDMF) requested a minor modification to extend the future annual report deadlines for the Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) Incidental Take Permits from January 31 to the last day in February. You note that this extension would benefit your staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability.

We appreciate the challenges associated with staff availability and the data accessibility at this time of year, and this delay will not significantly impact our ability to review the annual report. National Marine Fisheries Service (NMFS) therefore concurs with your request for this minor modification. Please sign below to acknowledge that you will comply with the minor modifications specified in this letter and send a copy of the signed letter to Kristy Long on my staff at your earliest convenience.

We note that NCDMF has requested several modifications since the permit began and understand that you are in the process of developing an updated Incidental Take Permit application. We encourage you to incorporate any further anticipated minor modifications into that application process so we can more efficiently analyze these requests.

Please feel free to contact Ron Dean (ron.dean@noaa.gov) or Kristy Long (kristy.long@noaa.gov) with any questions about this minor modification request approval or your pending updated application.

We look forward to continuing to work with you on sea turtle conservation in North Carolina.

Sincerely,

Donna S. Wieting

Donna S. Wieting
Director, Office of Protected Resources

Printed on Recycled Paper

I acknowledge the minor modification specified above to Permit No. 16230 issued under Section 10 (a)(l)(B) of the Endangered Species Act to incidentally take threatened and endangered sea turtles in gillnet fisheries operating in inshore waters of North Carolina.

Braxton C. Davis
Director
N.C. Division of Marine Fisheries

1-5-17
Date

APPENDIX B

September 2, 2016

David,

The North Carolina Watermen United (NCWU) would like to thank you setting up the meeting with gill- and pound- netters. We appreciate your efforts to help re-open closed areas and keep others from being closed.

However, as many of the attendees at the meeting in Wanchese on Tuesday, August 30, 2016 mentioned, every possible action has been in effect for years to reduce interactions with endangered sea turtles under the regulations of the Sea Turtle ITPs since 2002. We already have many gear modifications, closures in high turtle interaction areas, a reduction in fishing times and a reduction in fishing efforts that include -

- 1. The state is divided into 6 Unit Areas and 4 of those 6 units have 4 days a week fishing only; night-time soaks only; 15-mesh deep nets and no floats. These are year-round restrictions in the 4 areas.

- 2. The southern portion of Unit A is also under these same restrictions. The entire deep-water area of Pamlico Sound is closed to the use of large mesh gillnet from September 1 until January of the next year.

- 3. All inlet corridors are closed to large mesh gillnets after September 1 each year.

- 4. Unit E is closed to the use of large mesh gillnets every May until October.

- 5. In all internal waters, the only areas that do not have gear modifications and further restrictions under the ITP are the northern parts of Unit A and Unit C – both of which have minimal interactions with sea turtles, and still only 4 interactions per unit per year are authorized.

At this time, NCWU would like to ask again that a meeting be set up with NCWU and NCFA fishermen, especially gill- and pound- netters, with representatives from the NC Division of

Marine Fisheries and with Jean Beasley from the Karen Beasley Sea Turtle Foundation. Jean Beasley and NCWU asked the previous DMF Director for this meeting many times, but he never acted on our request. It is the perfect time to listen to her ideas and experiment with the devices that she has been advocating for years that she believes would help lessen the number of turtle interactions. I am a gillnetter and very willing to help test and monitor these devices.

We are hopeful that the cooperation between NCWU, NCFA and the NCDMF with Jean Beasley may help us all to solve some of the problems that our state's gillnet fishermen are experiencing.

Thank you.

Yours truly,

Andrew Berry

Andrew Berry
NCWU Board Member
252-722-4293
bowhunterab14@gmail.com

AB: mm
cc: NCDMF Director Braxton Davis, Chris Batsavage; Jacob Berg
NCDEQ Secretary van der Vaart
NCFA Director Jerry Schill, Chairman Brent Fulcher

APPENDIX C

Chris,

I am following up on the Protected Species Workgroup meetings. As was discussed at both meetings, there have been more than substantial measures directly, and indirectly, reducing mitigation of turtle interactions, but those measures need quantified.

I am requesting per the direction of the fishermen, that NCDFM quantify the total sea turtle mitigation reduction that has taken place from prior to the sea turtle lawsuit to present. It should also include impacts by other regulations such as fishery effort/harvest reductions. For the information to be useful, it may be necessary to separate reductions based on ITP closures from other reductions, so that we can determine how effective all of the other measures have been without closures. You may even include one total with, and one without closures.

It is also requested that a biological opinion be completed relating to those measures, once quantified, addressing the successful mitigation of sea turtles. It should include any potential measures that might be necessary, and only if necessary, to reduce interactions sufficiently, without relying on a set number to base closures on. This opinion should address both large and small mesh fisheries that have substantial interaction with turtles.

These items are being requested to work towards an ITP that sufficiently protects the species, while preventing unnecessary closures to the fishery.

I was just directed to make this request and wanted to get it to you as soon as possible. If in my haste I was unclear and need to clarify anything, please contact me anytime.

Take care,

David Bush
Fisheries Biologist,
NC Fisheries Association
(910)777-1605

APPENDIX D

Marine Fisheries
ENVIRONMENTAL QUALITY

PAT McCRORY
Governor
DONALD R. VAN DER VAART
Secretary
BRAXTON C. DAVIS
Director

Angela Somma
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Angela:

North Carolina Division of Marine Fisheries (NCDMF) Observer Program data have been updated using the finalized 2015 Trip Ticket Program (TTP) data. The Annual Completion Report for the Atlantic Sturgeon Incidental Take Permit (ITP) No. 18102 was completed for ITP Year 2015 and submitted in January 2016. Using the finalized 2015 data, Tables 1, 2, 7, and 8 from the Completion Report were updated to reflect the final estimates of observer coverage and Atlantic sturgeon takes (Tables 1-4). The fall 2014 season was based on finalized 2014 TTP data and did not deviate from the previous report for both large and small mesh gill nets (Tables 1 and 2).

The winter 2014 – 2015 season had an increase in fishing trips for large mesh gill nets than previously estimated in management units D and E (Table 1). Observer coverage goals for large mesh gill nets were met in all management units except management units A and B for the winter 2014 – 2015 season. Fishing activity in management unit B was sparse during the winter 2014 – 2015 season with only 87 fishing trips reported for the three month period. Observer coverage for management unit A during the same period totaled 4.9% with 38 observer trips completed. The spring 2015 season had an increase in fishing trips for large mesh gill nets than previously estimated in all management units except management units A and B. Observer coverage goals for large mesh gill nets were met in all management units except management unit A which had 6.7% observer coverage for the spring 2015 season. The summer 2015 season had an increase in fishing trips for large mesh gill nets than previously estimated in management units C and E. Observer coverage goals for large mesh gill nets were met in all management units for the summer 2015 season (Table 1).

The winter 2014 – 2015 season had an increase in fishing trips for small mesh gill nets than previously estimated in management units C, D, and E (Table 2). Observer coverage goals for small mesh gill nets were met in all management units except management units B and D for the winter 2014 – 2015 season. Fishing activity in management unit D was sparse during the winter 2014 – 2015 season with only 105 fishing trips reported for the three month period. Observer coverage for management unit B during the same period totaled 0.9% with 5 observer small mesh gill net trips completed. The spring 2015 season had no increase in fishing trips for small mesh gill nets than previously estimated. Observer coverage goals for small mesh gill nets were met in all management units for the spring 2015 season. The summer 2015 season had an

increase in fishing trips for small mesh gill nets than previously estimated in management units A, C and D. Observer coverage goals for small mesh gill nets were met in all management units except management unit D where observer coverage totaled 0.9% for small mesh gill nets in the summer 2015 season (Table 2).

Annual estimated allowable Atlantic sturgeon takes were recalculated for large and small mesh gill nets using the finalized 2015 TTP data (Tables 3 and 4). The estimates of Atlantic sturgeon takes in large mesh gill nets decreased or remained constant from previous estimates for the summer and fall seasons in management unit A (Table 3). For management unit A, estimates increased in large mesh gill nets for the winter and spring seasons. For each season and management unit for large mesh gill nets, the fishery remained below the annual estimated allowable Atlantic sturgeon takes for all dispositions for ITP Year 2015 (Table 3).

The estimates of Atlantic sturgeon takes in small mesh gill nets decreased or remained constant from previous estimates for all seasons and management units (Table 4). For each season and management unit for small mesh gill nets, the fishery remained below the annual estimated allowable Atlantic sturgeon takes for all dispositions for ITP Year 2015 (Table 4).

Table 1. Observer coverage calculated from finalized 2015 Trip Ticket data and observer data for large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2015 (September 1, 2014 - August 31, 2015).

		Large Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2014	A	2,529	192	7.6
	B	1,448	154	10.6
	C	904	152	16.8
	D	287	81	28.2
	E	282	58	20.6
Winter 2014-2015	A	779	38	4.9
	B	87	0	0.0
	C	54	14	25.9
	D	6	1	16.7
	E	16	7	43.8
Spring 2015	A	2,369	158	6.7
	B	383	44	11.5
	C	1,033	72	7.0
	D	97	7	7.2
	E	389	61	15.7
Summer 2015	A	115	12	10.4
	B	109	16	14.7
	C	328	40	12.2
	D	124	17	13.7
	E	661	98	14.8
Total		12,000	1,222	10.2

Table 2. Observer coverage calculated from finalized 2015 Trip Ticket data and observer data for small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2015 (September 1, 2014 - August 31, 2015).

		Small Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2014	A	566	18	3.2
	B	1,381	22	1.6
	C	309	15	4.9
	D	405	16	4.0
	E	624	24	3.8
Winter 2014-2015	A	1,194	64	5.4
	B	527	5	0.9
	C	262	12	4.6
	D	105	0	0.0
	E	140	15	10.7
Spring 2015	A	1,062	52	4.9
	B	1,210	23	1.9
	C	238	12	5.0
	D	65	7	10.8
	E	185	14	7.6
Summer 2015	A	172	3	1.7
	B	899	12	1.3
	C	181	6	3.3
	D	116	1	0.9
	E	275	11	4.0
Total		9,916	332	3.3

Table 3. Authorized and actual annual estimated Atlantic sturgeon incidental takes per fishing year (for a total of 10 years; the life of the permit) in North Carolina's large mesh (≥5.0 ISM) inshore gill net fishery for ITP Year 2015 (September 1, 2014 - August 31, 2015).

		Total Interactions			
		Authorized (Mortality)		Actual All DPS [2]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	149 (6)	50 (2)	41	0
	Spring	460 (19)	154 (6)	174	0
	Summer	157 (6)	52 (2)	6	0
	Fall	838 (34)	279 (11)	297	26
B	Winter	2 (1)[1]	n/a	0	0
	Spring	1 (1)[1]	1 (0)	0	0
	Summer	4 (2)[1]	2 (0)	0	0
	Fall	17 (2)[1]	6 (0)	1	0
C	Winter	2 (1)[1]	n/a	0	0
	Spring	3 (1)[1]	1 (0)	0	0
	Summer	2 (1)[1]	1 (0)	0	0
	Fall	4 (2)[1]	2 (0)	1	0
D	Annual	8 (2)[1]	n/a	0	0
E	Annual	8 (2)[1]	n/a	1	0
Total		1,655 (80)	548 (21)	521	26

[1] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were ≤ 5 mortality was one; if observed interactions were >5 mortality was two.

[2] Fin clip samples have been sent to the lab for genetic analysis

Table 4. Authorized and actual annual estimated Atlantic sturgeon incidental takes per fishing year (for a total of 10 years; the life of the permit) North Carolina's small mesh (<5.0 ISM) inshore gill net fishery for ITP Year 2015 (September 1, 2014 - August 31, 2015).

		Total Interactions			
		Authorized (Mortality)		Actual All DPS [2]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	175 (14)	35 (3)	0	0
	Spring	219 (17)	44 (4)	90	0
	Summer	72 (6)	14 (1)	0	0
	Fall	103 (8)	21 (2)	0	0
B	Winter	2 (1)[1]	n/a	0	0
	Spring	6 (2)[1]	1 (0)	3	1
	Summer	3 (1)[1]	1 (0)	1	0
	Fall	3 (1)[1]	1 (0)	0	0
C	Winter	2 (1)[1]	n/a	0	0
	Spring	2 (1)[1]	n/a	0	0
	Summer	2 (1)[1]	n/a	0	0
	Fall	2 (1)[1]	n/a	0	0
D	Annual	8 (2)[1]	n/a	3	0
E	Annual	8 (2)[1]	n/a	2	0
Total		607 (58)	117 (10)	99	1

[1] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were ≤ 5 mortality was one; if observed interactions were >5 mortality was two.

[2] Fin clip samples have been sent to the lab for genetic analysis

Sincerely,

Jacob Boyd, Protected Species Biologist
Division of Marine Fisheries, NCDEQ

cc: Chris Batsavage
Braxton Davis
Dee Lupton
John McConnaughey

Nothing Compares
State of North Carolina | Environmental Quality | Marine Fisheries
PO Box 769 | 3441 Arendell Street | Morehead City, NC 28557
252 726 7021 T

APPENDIX E

Marine Fisheries
ENVIRONMENTAL QUALITY

PAT McCRORY
Governor
DONALD R. VAN DER VAART
Secretary
BRAXTON C. DAVIS
Director

Angela Somma
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Angela:

North Carolina Division of Marine Fisheries (NCDMF) Observer Program data have been updated using the finalized 2015 Trip Ticket Program (TTP) data. Using the finalized 2015 data, the fall 2015 season was updated as well as December 2015, which is part of the winter 2015 – 2016 season for Incidental Take Permit Year 2016. Based on finalized TTP data averaged from 2011 through 2014, the estimated number of fishing trips (n = 895) for the winter 2015 – 2016 increased by 396 trips, increasing the overall season's estimated fishing trips to 1,291 (Table 1). The 158 estimated Atlantic sturgeon takes were calculated based on the estimated fishing trips before the finalized 2015 data were available. The 276 estimated Atlantic sturgeon takes were based on finalized December 2015 increasing estimated takes by 118 fish (Table 1). Based on finalized December 2015 data and preliminary January/February 2016 data, the large mesh gill-net fishery for the winter 2015 – 2016 season in management unit A went over the allowed takes for Atlantic sturgeon by a total of 77 fish (Table 1).

Table 1. Estimated trips (previous years data) compared to actual fishing trips (finalized 2015 data) and estimated Atlantic sturgeon allowable takes (preliminary) compared to the estimated takes based on finalized 2015 Trip Ticket Program data for the winter season (December 2015 - February 2016).

				Atlantic Sturgeon Takes		
		Fishing trips		Estimated		Allowed
Management Unit	Season	Estimated [1]	Actual [2]	Estimated [3]	Actual [4]	All DPS
A	Winter 2015-2016	895	1291	158	276	199 (8)

[1] Finalized Trip Ticket Program data averaged from 2011-2014

[2] Finalized 2015 Trip Ticket Program data for December and preliminary data for January/February 2016

[3] Based on estimated fishing trips

[4] Based on actual fishing trips (December 2015 finalized data and January/February 2016 preliminary data)

Nothing Compares

State of North Carolina | Environmental Quality | Marine Fisheries
PO Box 769 | 3441 Arendell Street | Morehead City, NC 28557
252 726 7021 T

Sincerely,

Jacob Boyd, Protected Species Biologist
Division of Marine Fisheries, NCDEQ

cc: Chris Batsavage
Braxton Davis
Dee Lupton
John McConnaughey

Nothing Compares

State of North Carolina | Environmental Quality | Marine Fisheries
PO Box 769 | 3441 Arendell Street | Morehead City, NC 28557
252 726 7021 T

Marine Fisheries
ENVIRONMENTAL QUALITY

Annual Sea Turtle Interaction Monitoring of the Anchored Gill-Net Fisheries in North Carolina for Incidental Take Permit Year 2016

Annual Completion Report for Activities under Endangered Species Act
Section 10 Incidental Take Permit No. 16230

Jacob Boyd

North Carolina Department of Environmental Quality
North Carolina Division of Marine Fisheries
Protected Resources Section
3441 Arendell Street
Morehead City, NC 28557

February 2017

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The North Carolina Division of Marine Fisheries (NCDMF) applied for an Incidental Take Permit (ITP) under Section 10(a)(1)(B) of the Endangered Species Act of 1973 (Public Law 93-205) (ESA) on June 14, 2010 to address sea turtle interactions with anchored gill nets in North Carolina's internal coastal (estuarine) waters. Species of sea turtles found in the estuarine waters of North Carolina include green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), hawksbill sea turtle (*Eretmochelys imbricate*), and leatherback sea turtle (*Dermochelys coriacea*). This request was prompted by notification from the National Marine Fisheries Service (NMFS) - Southeast Regional Office (SERO) in July and November 2009 indicating the need for the state of North Carolina to address unauthorized takes of sea turtles occurring in inshore anchored gill-net fisheries. A revised ITP application was submitted on August 17, 2011 based on feedback received from the NMFS on May 12, 2011. Feedback on the revised application from the NMFS was provided again on May 2, 2012 after public and peer review comments had been compiled. In response to requested changes from the NMFS, and considering the public and peer review comments, including the comments made by the North Carolina Sea Turtle Advisory Committee (NCSTAC), the NCDMF made extensive revisions to its application and resubmitted it on September 6, 2012. After another round of public and peer review comments the NMFS requested more information and clarification on certain portions of the application. On November 14, 2012, the response to the information request was discussed via teleconference between the NMFS and the NCDMF and provided to them beforehand. The NMFS recommended that the NCDMF update the current ITP application with an appendix containing all the updated information requested.

During the November 14, 2012 teleconference, the NMFS suggested breaking down the annual requested takes for Kemp's ridley and loggerhead sea turtles cumulatively similar to the previous ITPs for the Pamlico Sound Gill Net Restricted Area (PSGNRA). The NCDMF also suggested annual cumulative requested takes for all species of sea turtles for the exempt areas. A revised application was resubmitted on January 18, 2013.

On April 17, 2013 the NMFS set up a teleconference with the NCDMF to go over the revised ITP application that was submitted on January 18, 2013. Information was provided to the NMFS to clarify issues they had with the application. On April 22, 2013, the NMFS again asked for further clarification on different aspects of the ITP application which the NCDMF promptly responded to. At that time the NCDMF was informed by the NMFS that they hoped to have a draft permit within a month to discuss with the NCDMF. On April 30, 2013, the NCDMF staff were contacted by the NMFS for further explanation on the methodologies of the Observer Program. Explanations were provided and the NMFS did not have any more questions at the time.

On May 20, 2013, the NCDMF had another teleconference with the NMFS concerning the ITP application status and to review the Biological Opinion and Environmental Assessment protocols. At this time the NMFS raised concerns on the number of observed takes requested in the ITP application. During the May teleconference, the NCDMF and the NMFS agreed to base authorized takes by area on an annual basis instead of a seasonal basis. As such, the number of requested observed takes was reduced by taking the seasonal component out of the equation. The NMFS brought up the idea of having an Implementing Agreement for the Sea Turtle ITP, similar to the Implementing Agreement the NMFS has suggested for the Atlantic Sturgeon ITP. The NMFS explained that an Implementing Agreement would provide more flexibility and could reduce the risk of the permit being suspended due to excessive takes, but it will not allow for additional takes. The NMFS explained that any new information could be provided in another appendix to the existing application. The NCDMF asked the NMFS to provide a copy of a draft Implementing Agreement for consideration.

The NCDMF received the Sea Turtle ITP on September 11, 2013. The Sea Turtle ITP defined an ITP Year as beginning on September 1 and running through August 31 of the following year. This ITP authorized the implementation of adaptive management measures to protect threatened and endangered sea turtles and other ESA listed species, while allowing anchored gill-net fisheries to be prosecuted in the estuarine waters of North Carolina. The ITPs Conservation Plan specifies further measures, which the NMFS determined will minimize, monitor, and mitigate the impacts of incidental takes of ESA-listed sea turtle species associated with the otherwise lawful anchored gill-net fisheries operating in estuarine North Carolina waters. Anchored gill nets are passive sets deployed with an anchor, stake, or boat at one or both ends of the net shots or operation. Anchored gill nets do not include the following types of gill nets: run around, strike, drop or drift gill nets.

The Annual Completion Report for ITP Year 2014 (September 1, 2013 – August 31, 2014) was submitted January 30, 2015 (Boyd 2015a). During review of the 2014 Sea Turtle ITP Annual Completion Report, the NMFS requested modifications to certain tables and figures in the annual report. These modifications were addressed in the Annual Completion report for ITP Year 2015 (September 1, 2014 – August 31, 2015) which was submitted January 30, 2016 and included: maps for each management unit to include number of gill-net hauls and sea turtle interactions and tables which have all of the estimated/observed takes exactly as portrayed in the permit with 95% confidence intervals included (Boyd 2016a).

During the summer 2015 season a minor modification was enacted through the NMFS combining authorized takes for management units A (n = 4) and C (n = 4) for total authorized take limit of eight sea turtles from anchored large or small mesh gill nets and any species or disposition (Boyd 2016a).

METHODS

Observer Activity

The conservation plan includes managing the estuarine anchored gill-net fisheries by dividing North Carolina's estuarine waters into six management units (A, B, C, D1, D2, and E; Figure 1). Trip Ticket Program (TTP) data along with Observer Program data from previous years are used when estimating the amount of trips needed for the current year in each management unit and season. Also, real time TTP data are used for areas where effort may be increasing. Each year effort can potentially shift from one management unit to another making it important for the NCDMF to not base the observer effort solely on previous years' data, but also on current effort. To account for fluctuations in TTP data caused by management unit closings, a five-year average was used for estimating anchored large mesh gill-net fishing trips and a three-year average was used for estimating anchored small mesh gill-net fishing trips for ITP Year 2016. This method of estimating trips proves to more accurately reflect the current fishing effort. Once TTP data are finalized in May of 2017, the final observer coverage will be recalculated and the finalized estimates of observer coverage will be provided to the NMFS.

Observer coverage was calculated for each season in each management unit by estimating fishing trips using an average of the previous five years' TTP data (2011-2015) for anchored large mesh gill nets, and the average of the previous three years' (2013-2015) TTP data for anchored small mesh gill nets, while taking reduced season dates in each management unit into account by calculating the proportion of actual to possible fishing days. This calculated estimated fishing effort was compared to the observer trips completed throughout the ITP Year. The average, normalized effort was used when estimating fishing trips to account for the fluctuation of fishing effort throughout the years due to closures and other regulations put in place throughout the time series.

The onboard Observer Program, where observers ride onboard fishermen's vessels, is the preferred method of obtaining observer data and is used most frequently. Protected species interactions, gear parameters, as well as detailed gill-net catch, bycatch, and discard information for all species caught are recorded. The alternative platform Observer program requires two observers in a state owned vessel to monitor commercial fishermen hauling their gill nets. The alternative platform observers document protected species interactions and also provide catch and discard estimates for other species that are observed. The amount of biological data that are collected on alternative platform observer trips is notably less than onboard observer trips. Therefore, onboard observer trips are highly preferred due to the information being used when making management decisions, in stock assessments, in the development of fishery management plans, and for identifying bycatch (finfish, protected species) problem areas. For alternative platform trips, observers and Marine Patrol follow similar protocols using NCDMF vessels to observe the fishing trip. Each observer attempts to obtain a minimum of three to four trips per working week when fishing activity is occurring. Observers are assigned a management unit to

work weekly and the amount of observers assigned to a management unit depends upon the season and fishing effort. Fishing effort is estimated from the previous 3-5 year's TTP data by week, month, and management unit to determine where and how much observer coverage is needed each week and for each management unit by month/season. Reports from observers and other staff are used to determine if effort is fluctuating between management units. Trends from the previous years' TTP data are also analyzed to determine if fishing effort is shifting from one management unit to another. Fishermen holding an Estuarine Gill Net Permit (EGNP) in North Carolina are pooled by management unit and further split into lists by geographic area within units. The contact information for these fishermen is then given to the observers assigned to that area and the observers contact the fishermen to set up trips from the list of names given. Preliminary TTP information is also used to refine the list to represent individuals who are actively participating in fishing activities. Observers continually visit fish houses and dealers where they hand out business cards with their contact information and brochures explaining the Observer Program, giving the fishermen another outlet to allow observers on their vessels. Additionally, the Observer Program uses a website (http://portal.ncdenr.org/web/mf/observers-program) to provide outreach to fishermen to facilitate obtaining trips.

Alternative platform trips are utilized for areas that may be hard to get onboard trips (i.e., fishermen in remote locations that leave from their residence by boat). Alternative platform trips are also utilized in areas where fishing effort may increase quickly, where sea turtle abundance is high, and when observers are unable to set-up onboard trips due to fisherman compliance issues. Marine Patrol also conducts alternative platform trips weekly in all management units based on similar methodologies as the Observer Program. Coordination of onboard, alternative platform, and Marine Patrol alternative platform trips is done regularly to avoid sampling bias by avoiding multiple observations of a single trip and to achieve the maximum amount of observer coverage possible for each management unit. Changes in effort, sea turtle abundance (i.e., observed and reported interactions), and other protected species interactions are monitored on a daily, weekly, and monthly basis to ensure proper observer coverage is being maintained. The ITP requires a minimum of 7% observer coverage, with a goal of 10% of the total anchored large mesh gill-net (≥4 inches stretched mesh-ISM) fishing trips, and a minimum of 1% coverage, with a goal of 2% of the total anchored small mesh gill-net (<4 ISM) fishing trips per management unit for the spring, summer, and fall seasons.

Observers are trained to identify, measure, evaluate condition, resuscitate, and tag sea turtles by the NMFS – Beaufort Lab and the NCDMF. Data collected on observed sea turtles includes: Date, time, tag numbers, location (latitude and longitude, when possible), condition (i.e., no apparent harm, injury including a description of the nature of the injury, or mortality), species, sex (if determinable), and curved carapace length (mm) and width (mm) are recorded for each sea turtle observed. Photographs and environmental parameters (i.e., salinity, water temperature) are also collected when feasible. Dead sea turtles are retained by the observer when feasible.

All live, debilitated sea turtles are retained by the observer and delivered to the North Carolina Sea Turtle Stranding Network for examination and treatment. Observers also collect data on location, gear parameters, catch, and bycatch for each haul depending on the observed trip type (onboard/alternative platform). The catch is sampled throughout each onboard trip including weights, lengths, and disposition (alive/dead). Data are coded on the NCDMF data sheets and uploaded to the NCDMF Biological Database for analysis. All observers are debriefed within 24 hours of each trip to obtain data on catch, set locations, gear parameters, and sea turtle interactions to provide estimates of sea turtle bycatch.

The total bycatch of sea turtles for each management unit was estimated using the stratified ratio method (SAS 2004). The bycatch rate (sea turtles caught per fishing trip) estimated from observer data was multiplied by the total fishing trips (average of the previous 3-5 year's TTP data). To estimate confidence intervals (95%), the bootstrap method was used to sample estimates. Strata consisted of the six management units (A, B, C, D1, D2, and E; Figure 1). Estimates were calculated by date of capture, management unit, species, and disposition. Estimates were accumulated each week to implement necessary management measures if authorized take thresholds were approached.

$$\text{Estimated Interactions} = \left(\frac{\text{\# of sea turtle interactions observed}}{\text{total gill-net trips observed}}\right) \text{total gill-net trips}$$

Seasons

The Observer Program's activities are reported on a weekly, seasonal, and annual basis. Weekly progress reports are required following a week in which a sea turtle interaction occurred and includes information such as take estimates, cumulative totals, number of observed trips, and observed takes with all associated information. The seasonal progress reports include a summary of the weekly reports, additional management measures if taken, compliance, violations that occurred, and any adaptive management actions taken during the season. Annual reports include actual and estimated takes including mortality and the level of uncertainty of the estimates (i.e., 95% confidence intervals) by management unit, size composition along with all other interaction information, one or more maps illustrating the geographic distribution of all observed anchored large and small mesh gill-net hauls and the locations of all interactions, and a description of the mitigation activities, adaptive management actions, and enforcement activities conducted during the ITP year.

Authorized Takes

Authorized levels of annual incidental take are specified in Tables 1 - 5. The amount of incidental take is expressed as either estimated or observed takes depending on the amount of data available for modeling predicted takes. Extrapolated sea turtle takes were computed by dividing the number of sea turtle interactions observed by the total anchored gill-net trips

observed and then multiplying by the total anchored gill-net trips. Nonparametric confidence intervals (95%) were calculated using standard bootstrapping techniques (Efron and Tibshirani 1993) using the 'boot' package in R (Canty and Ripley 2015; Davison and Hinkley 1997; R Core Team 2015). Bootstrap replicates were generated by sampling observer trips with replacement 5,000 times within strata (mesh/season/management unit; Tables 1 - 5). Because reaching the estimated or observed level for any category of authorized takes for any species would end the incidental take authorization for all species; it is highly unlikely that all five species would be impacted at these full levels. Takes must be incidental to otherwise lawful activities associated with the anchored large and small mesh gill-net fisheries, and as conditioned herein. The permit covers incidental takes from the date of issuance through August 31, 2023. The NCDMF will use preliminary data to monitor the total number of live and dead takes by species per unit to determine if the NCDMF is approaching or has reached the authorized takes for any sea turtle species. Once TTP data are finalized in May of 2017, the final authorized estimated sea turtle takes will be recalculated and the finalized estimates will be provided to the NMFS.

Compliance

The NCDMF observers and Marine Patrol conduct weekly fish house visits, boat patrols, fisherman spot checks, gear checks, aerial surveys, and continued outreach to the industry for the purpose of ensuring industry compliance and communicating efforts throughout the state.
The Observer Program has various ways to contact fishermen to schedule trips. The most common method is by phone due to limited program resources, fishermen leaving from their residence, and efficiency. The Observer Program has a contact log which is filled out for every phone call or contact that is made when attempting to obtain a trip. Each contact was put into a specific category and other information is gathered (Table 6). The contact log was analyzed by month and category to determine what percentage of phone calls resulted in observer trips.

RESULTS

Observer activity

Fall 2015

The fall 2015 season for anchored large and small mesh gill nets in North Carolina is September through November for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 16230. Anchored large and small mesh gill nets opened via proclamation M-13-2015 on September 1, 2015 in the western portion of management unit A with the eastern portion of Albemarle Sound including Croatan and Roanoke sounds remaining closed to minimize sea turtle interactions (Table 7; Boyd 2015b). Management unit E closed to anchored large mesh gill nets via proclamation M-14-2015 on September 1, 2015 to minimize sea turtle interactions. Management unit C opened to anchored large and small mesh gill nets via proclamation M-14-2015 on September 1, 2015 but closed to anchored large mesh gill nets via proclamation M-15-2015 on September 24, 2015 through the end of the fall 2015 season due to approaching authorized Atlantic Sturgeon interactions. Anchored large mesh gill nets closed via proclamation M-20-2015 on October 17, 2015 in management unit B subunits (SGNRA 1-4, CGNRA) to minimize sea turtle interactions with subunit MGNRA remaining open. Anchored large and small mesh gill nets closed via proclamation M-21-2015 on October 17, 2015 in management unit A due to sea turtle interactions. Portions of management unit A (western Albemarle Sound, Currituck Sound) reopened on October 26 and November 2, 2015 via proclamations M-22-2015 and M-23-2015, respectively. Management unit D1 and the eastern subunits of management unit B (SGNRA 1-4, CGNRA) opened to anchored large and small mesh gill nets on November 2, 2015 via proclamation M-24-2015. Management unit B closed to anchored large mesh gill nets via proclamation M-25-2015 on November 5, 2015 due to sea turtle interactions (Table 7; Boyd 2015b).

The Observer Program achieved an estimated 10.2% overall anchored large mesh gill-net coverage for the fall 2015 season meeting the minimum requirement (7.0%) in all management units based on preliminary data (Table 8; Figures 2 - 8; Boyd 2015b).

The Observer Program achieved an estimated 4.1% overall anchored small mesh gill-net coverage for the fall 2015 season meeting the minimum requirement (1.0%) in all management units based on preliminary data (Table 9; Figures 2 - 8; Boyd 2015b).

There were 29 observed sea turtle interactions from anchored large mesh gill nets and two observed from anchored small mesh gill nets in the fall 2015 season (Table 10; Figures 2 - 8; Boyd 2015b). The species composition was made up of primarily green sea turtles (n = 24 alive; n = 4 dead), with one alive and one dead Kemp's ridley sea turtles, and one alive unknown sea turtle. The majority of the interactions (74.2%) occurred in management unit B (Table 10;

Figures 2 - 8). No fisherman self-reported sea turtle interactions occurred during this time period (Table 11; Boyd 2015b).

Spring 2016

The spring 2016 season for anchored large and small mesh gill nets in North Carolina is March through May for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 16230. American shad season began in management unit A on March 3, 2016 via proclamation M-2-2016 implementing gill net restrictions (i.e., 100 yard maximum net length, 25-yard spacing, 12-hour soak time, four-day fishing weeks, 15 meshes deep, maximum of 2,000 yards combined, prohibited to use floats) for anchored large mesh gill nets in the eastern portions of Albemarle Sound including Croatan and Roanoke sounds while implementing gill-net configurations (i.e., remove vertical height restrictions, allow floats) to allow for harvesting American shad in portions of management unit A (Table 7; Boyd 2016b). Portions of management unit E (upper Cape Fear and Northeast Cape Fear rivers) closed to anchored large mesh gill nets via proclamation M-5-2016 on April 10, 2016 due to an interaction with a Shortnose Sturgeon (*Acipenser brevirosturm*). Management unit A closed to anchored large mesh gill nets via proclamation M-6-2016 on April 23, 2016 for the remainder of the spring 2016 season due to reaching authorized dead Atlantic Sturgeon takes. Management unit E closed to anchored small mesh gill nets via proclamation M-8-2016 on May 4, 2016 for the remainder of ITP Year 2016 due to reaching authorized sea turtle takes. Management unit D1 closed to anchored large mesh gill nets via proclamation M-9-2016 on May 9, 2016 as part of the annual closure outlined in the ITP (Table 7; Boyd 2016b).

The Observer Program achieved an estimated 9.5% overall anchored large mesh gill-net coverage for the spring 2016 season meeting the minimum requirement (7.0%) in all management units except management units B (6.7%), D1 (0.0%), and D2 (4.5%) based on preliminary data (Table 8; Figures 2 - 8). Observer coverage for management unit B was 6.7% (Table 8; Figures 2 - 8; Boyd 2016b).

The Observer Program achieved an estimated 2.6% overall anchored small mesh gill-net coverage for the spring 2016 season meeting the minimum requirement (1.0%) in all management units based on preliminary data (Table 9; Figures 2 - 8; Boyd 2016b).

There were three observed sea turtle interactions from anchored large mesh gill nets and three observed from anchored small mesh gill nets in the spring 2016 season (Table 10; Figures 2 - 8; Boyd 2016b). The species composition was made up of primarily green sea turtles (n = 2 alive; n = 2 dead), with one alive Kemp's ridley sea turtle, and one alive unknown sea turtle (Table 10; Figures 2- 8). The majority of the interactions (66.7%) occurred in management unit B (Table 10; Figures 2 - 8). There were four reported sea turtle interactions during this time period (Table 11). Of the four reported sea turtles, two were fisherman self-reported, one was reported by

Marine Patrol from an illegally set large mesh gill net, and one was reported by Marine Patrol from an abandoned large mesh gill net (Table 11; Boyd 2016b).

Summer 2016

The summer 2016 season for anchored large and small mesh gill nets in North Carolina is June through August for Incidental Take Permit (ITP) Year 2016 (September 1, 2015 – August 31, 2016) as defined in ITP No. 16230. The western portions of management unit A reopened to anchored large mesh gill nets via proclamation M-10-2016 on June 1, 2016 while maintaining the closure of all anchored gill nets in the eastern portion of the management unit to avoid interactions with sea turtles (Table 7; Boyd 2016c). Management unit A was previously closed to the use of anchored large mesh gill nets on April 23, 2016 via proclamation M-6-2016 due to reaching authorized dead Atlantic Sturgeon takes. Management unit B closed to anchored large mesh gill nets via proclamation M-12-2016 on June 6, 2016 for the remainder of the summer 2016 season due to reaching authorized sea turtle takes. Management unit A closed to anchored large and small mesh gill nets via proclamation M-13-2016 on June 7, 2016 for the remainder of the summer 2016 season due to reaching authorized sea turtle takes. Portions of management unit E (upper Cape Fear and Northeast Cape Fear rivers) remained closed from April 10, 2016 through the summer 2016 season to anchored large mesh gill nets due to an interaction with a Shortnose Sturgeon. Management unit E remained closed through the summer 2016 season to anchored small mesh gill nets due to reaching authorized sea turtle takes on May 4, 2016. Management unit D1 remained closed through the summer 2016 season to anchored large mesh gill nets as part of the annual closure outlined in the Sea Turtle ITP (Table 7; Boyd 2016c).

The Observer Program achieved an estimated 14.2% overall anchored large mesh gill-net coverage for the summer 2016 season meeting the minimum requirement (7.0%) in all management units based on preliminary data (Table 8; Figures 2 - 8). Management unit D1 was closed for the duration of the summer 2016 season as part of the annual closure outlined in the ITP (Boyd 2016c).

The Observer Program achieved an estimated 1.2% overall anchored small mesh gill-net coverage for the summer 2016 season meeting the minimum requirement (1.0%) in all management units except management units A and B based on preliminary data (Table 9; Figures 2 - 8). Observer coverage for management unit B was 0.7%, management unit A was 0.0%, and management unit E remained closed to anchored small mesh gill nets for the duration of the summer 2016 season (Table 7; Boyd 2016c).

There were 17 observed sea turtle interactions from anchored large mesh gill nets during the summer 2016 season (Table 10; Figures 2 - 8; Boyd 2016c). There were no sea turtle interactions from anchored small mesh gill nets during the summer 2016 season. The species composition was made up of primarily green sea turtles (n = 7 alive; n = 3 dead), Kemp's ridley

sea turtles (n = 5 alive; n = 1 dead), and one alive unknown sea turtle (Table 10; Figures 2 - 8). Interactions primarily occurred in management unit E (52.9%) and management unit B (23.5%; Table 10; Figures 2 - 8). No fisherman self-reported sea turtle interactions occurred during this time period (Table 11; Boyd 2016c).

Authorized Takes

There was a total of 49 observed sea turtle interactions in anchored large mesh gill nets and five in anchored small mesh gill nets for ITP Year 2016 (Table 10; Figures 2 - 8). The species composition consisted of primarily green sea turtles (77.8%; n = 33 alive; n = 9 dead; Table 10; Figures 2 - 8). The remaining species consisted of a Kemp's ridley sea turtle (16.7%; n = 7 alive; n = 2 dead), and unknown sea turtles (5.6%; n = 3 alive; Table 10; Figures 2 - 8). Observed interactions occurred in management unit A (7.4%), management unit B (57.4%), management unit C (3.7%), management unit D1 (5.6%), management unit D2 (1.8%), and management unit E (24.1%; Table 10; Figures 2 - 8). Of the four reported sea turtle interactions for ITP Year 2016, two were self-reported by fishermen and two were reported by Marine Patrol from illegally set gill nets (Table 11; Boyd 2015b, Boyd 2016b, Boyd 2016c).

The size distribution of green sea turtles (n = 32) ranged from a curved carapace length of 232 mm to 608 mm and a curved carapace width of 196 mm to 482 mm (Figures 9 and 10). The size distribution of Kemp's ridley sea turtles (n = 8) ranged from a curved carapace length of 290 mm to 380 mm and a curved carapace width of 290 mm to 385 mm (Figures 11 and 12; Boyd 2015b, Boyd 2016b, Boyd 2016c).

The cumulative total estimated and observed takes for anchored large mesh gill nets did not reach the threshold of authorized takes for any management unit for ITP year 2016 except for alive Kemp's ridley takes in management unit B based on preliminary data (Tables 1 - 5). The cumulative total observed takes for anchored small mesh gill nets did not reach the threshold of authorized takes for any management unit for ITP year 2016 except for green sea turtle takes in management unit E based on preliminary data (Tables 1 - 5; Boyd 2015b, Boyd 2016b, Boyd 2016c).

The percentage of authorized takes that were utilized in ITP Year 2016 for anchored large mesh gill nets were calculated for estimated takes by species and disposition (green 45.2% alive, 3.0% dead; Kemp's 79.6% alive, 0.0% dead). The percentage of authorized takes that were utilized in ITP Year 2016 were also calculated for observed takes (green 44.4% alive/dead; Kemp's 0.0% alive/dead). Overall, for both anchored large and small mesh gill nets the percentage of estimated takes utilized (53.0% alive, 33.2% dead) and observed takes utilized (17.9% alive/dead) was below the authorized takes provided by the Sea Turtle ITP.

Compliance

Marine Patrol made 909 gill-net checks during the fall 2015 season resulting in 38 citations being issued (Tables 12 and 13). Marine Patrol made 286 gill-net checks for the spring 2016 season resulting in 16 citations being issued. Marine Patrol made 283 gill-net checks for the summer 2016 season with no citations being issued (Tables 12 and 13; Boyd 2015b, Boyd 2016b, Boyd 2016c).

In the fall 2015 season a total of 4,613 phone calls were made with 49.3% (n = 2,275) being categorized as 1, 8, 11, 12, 13, and 14, which inclusively represents not being able to get in touch with fishermen or fishermen refusing trips (Table 14). In the spring 2016 season, 3,169 phone calls were made with 52.1% (n = 1,638) being categorized as 1, 8, 11, 12, 13, and 14. In the summer 2016 season, 3,996 phone calls were made with 58.0% (n = 2,319) being categorized as 1, 8, 11, 12, 13, and 14 (Table 14). Notices of Violations (NOV) were issued when fishermen were found to be out of compliance with the EGNP with 18 NOVs issued during the fall 2015 season, six NOVs were issued during the winter 2015-2016 season, and six NOVs were issued during the spring 2016 season (Table 15; Boyd 2015b, Boyd 2016b, Boyd 2016c). No NOVs were issued during the summer 2016 season.

DISCUSSION

Management history

The NCDMF has addressed protected sea turtle issues in the coastal waters since the 1970s. Sea turtle protection has been accomplished by cooperative agreements with the North Carolina Wildlife Resources Commission (NCWRC), establishment of a sea turtle sanctuary, proclamation authority delegated to the Director of the NCDMF, additional queries on recreational surveys, management of the PSGNRA, formation of the NCSTAC, implementation of an Observer Program, commercial bycatch reduction gear testing projects, outreach to the commercial and recreational fishing industries, and collaboration with the NMFS.

The NCDMF applied for and received four ITPs for the PSGNRA from 2000 - 2005 managing the area for sea turtle takes in the fall of each year through 2012 under these permits (Gearhart 2001, 2002, 2003; Price 2004, 2005, 2006, 2007a, 2008, 2009a, 2010a; Murphey 2011; Boyd 2012a, 2013). Between 2000 and 2012, a number of changes were made in the PSGNRA such as: adjustments to authorized fishing areas, modified restrictions (e.g., state closure and net length restriction), and authorized take levels reduced (Gearhart 2003; Price 2010a; Murphey 2011; Boyd 2012a). These adaptations were made feasible as a result of the extensive monitoring program conducted by the NCDMF in the PSGNRA. The NCDMF also observed limited trips in the large and small mesh gill-net fisheries outside of the PSGNRA from 2004 to 2010 (Brown and Price 2005; Price 2007b, Price 2009b, Price 2010b; Boyd 2012b). The information gathered from these direct observations authorized the NCDMF to generate requested estimated take numbers for observed fisheries and draft a functional Conservation Plan.

In June 2009, the NMFS began an Alternative Platform Observer Program in Core Sound, NC. The NMFS observers documented sea turtle interactions in anchored large mesh gill nets in this area beginning in late June and notified the NCDMF of their concern for these unauthorized takes. The NCDMF consulted with the NMFS-SERO via conference calls and correspondence to discuss short and long-term actions to address sea turtle takes in gill nets in Core Sound and throughout the state. In the short term, the agencies agreed for the NCDMF to implement gear restrictions (yardage limits, mesh depth reduction, and net shot reductions) and increased observer coverage in Core Sound and adjacent water bodies (NCDMF Proclamation M-16-2009). For the long-term, the NCDMF continued consultations with the NMFS-SERO concerning the preparation of an ITP application for all internal coastal waters while compiling sea turtle interaction data from gill-net surveys, research projects, and direct observations.

On October 20, 2009, the day that authorized sea turtle takes were reached in the 2009 PSGNRA, a 60-day Notice of Intent (NOI) to sue the NCDMF and the North Carolina Marine Fisheries Commission (NCMFC) was received from the Duke Environmental Law and Policy Clinic on behalf of the Karen Beasley Sea Turtle Rescue and Rehabilitation Center Foundation

(Beasley Center). The NOI stated that the NCDMF and the NCMFC violated Section 9 of the ESA by allowing gear in state waters that had unauthorized takes of threatened or endangered sea turtles.

The NCDMF consulted with the NMFS-SERO concerning this NOI while continuing to work toward the preparation of an application for a statewide ITP for gill-net fisheries in internal coastal waters. In November 2009, the NCDMF received further correspondence from the NMFS-SERO reiterating the need to "satisfy the requirements of the ESA" relative to Core Sound sea turtle interactions. The NCDMF continued to collect sea turtle interaction data while developing an interim plan to address sea turtle interactions in gill-net gear. As a result of discussions and correspondence with the NMFS-SERO, the NCDMF submitted an interim plan in January 2010 to address sea turtle interactions in gill-net fisheries prosecuted in internal coastal waters. The plan proposed to close large mesh gill-net fisheries throughout the majority of the estuarine waters of North Carolina from May to December 2010.

On February 18, 2010 the NCDMF presented the interim proposal to the NCMFC and the public at an emergency NCMFC meeting in New Bern, NC. During the meeting, numerous commercial fishery representatives expressed concern with the proposed closure on the basis of the negative economic impact that would result from such a closure. Representatives from the Coastal Conservation Association (CCA-NC) did not support the interim closure stating the plan was too limited in scope. After thoroughly debating the issue, the NCMFC voted to direct the NCDMF to implement alternative measures that included reductions in the number of days per week that large mesh gill nets were authorized to be fished, restricted soak times, reductions in the length of individual nets (shots), and reductions in total yardage.

On February 23, 2010, the Duke Environmental Law and Policy Clinic filed suit against the NCDMF and the NCMFC on behalf of the Beasley Center. Negotiations between the parties occurred between late February and March 23, 2010, when the NCMFC met again. During the meeting, the NCMFC directed the fisheries director to issue a gill-net proclamation effective May 15, 2010 restricting the number of days during the week that anchored large mesh gill nets would be authorized, limiting soak time, establishing a maximum yardage limit, mandating maximum mesh depth, requiring maximum individual gill-net (shot) lengths, establishing spacing between net shots, and eliminating the use of tie-downs and floats or corks along float lines. The NCDMF Director did not issue the proclamation because, as detailed below, ongoing negotiations with the Beasley Center and the Duke Environmental Law and Policy Clinic produced a settlement agreement which preempted this particular action.

The NCMFC met May 12 through 14, 2010 and discussed the parameters of the final Settlement Agreement between the Beasley Center (plaintiff) and the NCDMF and the NCMFC. At that meeting, the NCMFC reached an agreement concerning restrictions that would be implemented

in the anchored large mesh gill-net fishery in NC estuarine waters. As a result of the NCMFC action, the NCDMF issued Proclamation M-8-2010 effective May 15, 2010 implementing the provisions of the Settlement Agreement. Gill-net restrictions implemented by the proclamation included: a range of 4 ISM to, and including, 6 ½ ISM for anchored large mesh gill nets; soak times limited to overnight soaks an hour before sunset to an hour after sunrise, Monday evenings through Friday mornings; anchored large mesh gill nets were restricted to a height of no more than 15 meshes, constructed with a lead core or leaded bottom line and without corks or floats other than needed for identification; a maximum of 2,000 yards of anchored large mesh gill nets authorized to be used per vessel; and maximum individual net (shot) length of 100 yards with a 25-yard break between shots (except for exempted areas including management unit C and portions of management unit A).

The Settlement Agreement included gill nets from 4 ISM to less than 5 ISM in the large mesh category because of observed sea turtle takes in 4 ISM and 4 ½ ISM gill nets in the NCDMF Independent Gill Net Survey. The measures were modified slightly several times, with the concurrence of the Beasley Center, to improve gear efficiency or adjust fishing area boundaries without compromising the sea turtle conservation provisions of the Settlement Agreement with fishermen in the southern portion of the state authorized to set anchored large mesh gill nets an extra day (Sunday evenings through Friday mornings) and use floats on nets, but were restricted to the use of a maximum of 1,000 yards of anchored large mesh gill net per fishing operation.

On November 21, 2016, the NCDMF requested a minor modification to extend the future annual report deadlines for the Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) ITPs from January 31 to the last day in February. This extension was to benefit staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability. On January 4, 2017, the NMFS sent a letter to the NCDMF concurring with NCDMF's request for the minor modification encouraging staff to incorporate any further anticipated minor modifications into the application process for an updated ITP (Appendix A).

Outreach

Staff from the NCDMF met with commercial industry leads on July 11, 2016 to discuss the current ITPs and options for moving forward with amendments. The North Carolina Fisheries Association (NCFA) requested this meeting in response to staff asking industry for their thoughts on potential ITP amendments and ways to further minimize sea turtle takes (in order to keep management units open longer under the current ITPs). During the meeting the NCFA discussed their interest in exploring gear modifications that are proven to reduce sea turtle interactions and would ultimately like to see the estuarine gill-net fishery managed under gear modifications (similar to the shrimp trawl fishery) without the constraints of the current ITPs. Staff from the NCDMF explained that while staff would be able to assist regarding the ITP permit process, the NCFA should work with researchers with expertise in gear development and apply for a research

Section 10 permit. In order to reach their ultimate goal, the NCFA would like to work on minimizing takes and amending the current ITPs by soliciting feedback from commercial gill netters throughout the state.

The NCFA scheduled two meetings on August 30 and 31, 2016 that focused on potential ITP amendments and ways to further minimize sea turtle and Sturgeon takes in the anchored gill-net fisheries. NCFA invited NCDMF staff to attend their meetings to hear the fishermen's feedback and to provide input on the feasibility of the fishermen's ideas. While discussing these meetings with the commercial industry leads, NCDMF staff raised the issue of the lack of fisherman compliance with the ITPs. NCFA fully agreed that it is a problem, and they plan on stressing the need for compliance at their meetings in order for this to be successful. Another comment made by the NCFA was they felt that the onboard observations by the NCDMF are very important. They also mentioned that the onboard observations are needed in order to collect biological information from the catch as opposed to just monitoring protected species interactions.

Staff from the NCDMF attended both meetings NCFA held in Wanchese, NC on August 30, 2016 and in Morehead City, NC on August 31, 2016. While most of the meetings were discussions amongst fishermen or directed at NCFA members, NCDMF staff answered and/or clarified questions as needed. The questions and/or concerns from fishermen included: confusion that self-reporting sea turtle and Sturgeon takes was a requirement of the ITPs, that the definition of a take includes live interactions, that the amount of restrictions already in place on the anchored gill-net fisheries were too great, and the belief that any further restrictions would lead to their inability to make a livelihood in the industry. The North Carolina Watermen United (NCWU), which were in attendance at the August 30, 2016 meeting, sent the NCDMF a letter on September 2, 2016 listing many modifications that are already in place in the anchored gill-net fisheries, but suggests another "more-inclusive" meeting for further discussion (Appendix B). The NCFA sent the NCDMF a follow-up email on September 19, 2016 with questions and concerns following the meetings (Appendix C).

At the August 2016 NCMFC meeting, Chairman Sammy Corbett announced that he was disbanding the STAC because it is not statutorily required and the NCMFC committee system already has a multitude of committees which are statutorily mandated. Chairman Corbett sent a letter explaining his decision to the committee members on August 25, 2016 (Appendix D).

Observer Activity

There was turnover within the Observer Program with positions being filled as quickly as possible to maintain coverage. The Observer Program actively placed observers in areas where fishing effort was high and where known sea turtle and Atlantic Sturgeon interactions occur. There were closures during each season throughout the state due to sea turtles and Atlantic

interactions. When a management unit closes for a portion of time the observers are shifted to the open management units to increase coverage in those management units. The contact log, which includes different categories to place each contact that was made to a fisherman, was beneficial for analyzing the type of contact that was being made and to see the number of observer trips that were obtained through the calling system.

There were multiple closures of various management units throughout the state in ITP Year 2016 (Table 7). Fishermen are more elusive to attempts by observers contacting them to set-up trips after proclamations enacting stricter regulations are implemented. Therefore, making it harder to obtain observer trips. No trips were obtained in management unit D1 during the spring 2016 season due to the management unit being closed for the latter portion of the spring 2016 season and minimal fishing effort while open. In the summer 2016 management unit A was open for only seven days before being closed to anchored large and small mesh gill nets for the duration of the summer 2016 season (Table 7). Therefore, no anchored small mesh trips were able to be obtained during this short time frame.

Compliance

Although ITP Year 2016 is the third year for the statewide ITP, fishermen are not as familiar with the Observer Program and requirements of the ITP as desired, so more time is needed to educate the industry. Alternative platform trips were employed in all management units more frequently throughout ITP Year 2016 in order to maintain observer coverage due to compliance issues with fishermen (i.e., not answering phone calls, not calling back). The required minimum 7% observer coverage is very difficult to achieve when observers must rely on alternative platform trips, as it requires two observers to obtain a trip. The NCDMF discussed the situation with industry leads to improve awareness and increase compliance.

There were no fisherman self-reported sea turtle takes during the fall 2015 and summer 2016 seasons with only two self-reported takes during the spring 2016 season (Table 11). The NCDMF also discussed this situation with industry leads and have provided outreach to fishermen explaining the requirement in the ITP of fishermen self-reporting and further details on the subject to try and increase self-reporting throughout the industry as a whole.

The NCDMF Observer Program data were updated using the finalized 2015 TTP data in May 2016. The Annual Completion Report for the Sea Turtle ITP) No. 16230 was completed for ITP Year 2015 and submitted in January 2016. Using the finalized 2015 data, Tables 1, 5, 10, and 11 from the Completion Report were updated to reflect the final estimates of observer coverage and sea turtle takes (Appendix E). The fall 2014 season was based on finalized 2014 TTP data and did not deviate from the previous report for both anchored large and small mesh gill nets. The spring 2015 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in all management units, except management units B and D1. The spring

2015 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management unit D2. The summer 2015 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in management units C and E. The summer 2015 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management units C and D2. Annual estimated authorized sea turtle takes were recalculated using the finalized 2015 TTP data. The estimates of sea turtle takes decreased or remained constant from previous estimates for all species and dispositions except for alive green sea turtles in management unit E which increased by an estimated four takes. The anchored large mesh gill-net fishery remained below the annual estimated authorized sea turtle takes for all species and dispositions for ITP Year 2015 (Appendix E).

During the summer 2016 season, the NMFS initiated a teleconference to discuss the NCDMF exceeding the estimated Kemp's ridley alive sea turtle take levels for management unit B. On June 6, 2016, management unit B had been reopened for three days when the take levels were exceeded for alive Kemp's ridley sea turtles with management unit B closing to anchored large mesh gill nets via proclamation M-12-2016 (Table 7). Staff from the NMFS and the NCDMF discussed how to move forward on August 24, 2016. Staff from the NCDMF described the methodologies for estimating sea turtle takes explaining how they are based on preliminary trip data and are subject to change based on finalized TTP data. Take estimates are recalculated each year once finalized TTP data become available in late spring and are communicated to NMFS via memo. NMFS reviews the annual report in its entirety once finalized estimates are provided to NMFS staff.

Based on finalized data for ITP Year 2015 and preliminary and finalized data for ITP Year 2016, the number of authorized sea turtle takes that were utilized by the anchored large and small mesh gill-net fisheries under the Sea Turtle ITP were analyzed to determine the percentage of unused takes for each ITP Year and therefore, remained in the populations of sea turtles. The percentage of authorized takes that remained for anchored large and small mesh gill nets was calculated for each species and disposition for estimated and observed takes. For ITP Year 2015, the percentage of authorized takes that remained for anchored large mesh gill nets was calculated for estimated takes by species and disposition (green 42.1% alive, 40.0% dead; Kemp's 64.3% alive, 85.7% dead) with similar numbers illustrated in the ITP Year 2016 data (green 54.8% alive, 57.0% dead; Kemp's 20.4% alive, 100.0% dead) statewide. The percentage of authorized takes that remained in ITP Year 2015 for observed takes was calculated by species (green 50.0% alive/dead; Kemp's 91.7% alive/dead; loggerhead 83.3%; with no interactions with hawksbill or leatherback sea turtles) with similar numbers illustrated in the ITP Year 2016 data (green 55.6% alive/dead; Kemp's 75.0% alive/dead; with no interactions with hawksbill or leatherback sea turtles) statewide. The data clearly illustrate that while there are instances where the NCDMF have exceeded authorized sea turtle takes for specific species and dispositions, overall the management of the Sea Turtle ITP has led to much less sea turtles being utilized from the

number of overall authorized takes. This is also due to management related to the Atlantic Sturgeon ITP as any closure of anchored large or small mesh gill nets caused from sturgeon interactions would in turn lead to infrequent sea turtle interactions due to gear being out of the water for long periods of time. Also, as expected and discussed in the Sea Turtle ITP application, the requested authorized take numbers represent a worst-case scenario and is highly unlikely, if possible, that the total authorized take levels will be approached for the ITP Year because the NCDMF will close a management unit for the remainder of that season or ITP Year if takes approach the authorized level for any of the five species for either disposition (alive/dead), not the authorized level for all species making it impossible to approach all five species authorized take levels for both dispositions. However, by not requesting the proper authorized amount for each species and disposition, the fisheries could close for long periods of time due to anomalous sea turtle events.

Estuarine Gill Net Permit

As per the ITP the NCDMF established an EGNP to register all fishermen participating in the anchored large and small mesh gill-net fisheries via proclamation M-24-2014 on September 1, 2014. The ITP's Implementing Agreement states that the NCDMF has two years to implement the EGNP to serve as a certificate of inclusion for fishermen. However, due to the compliance issues the NCDMF was facing during ITP year 2014, the EGNP was developed and became effective September 1, 2014 (one year from ITP issuance). The multifaceted EGNP was enacted to attempt to allow the NCDMF to closely monitor compliance. The EGNP is also used as a tool to improve fishermen compliance by including Specific Permit Conditions requiring fishermen to allow the NCDMF observers aboard their vessels to monitor catches. Failure to comply with this permit provision can result in a permit suspension. There were 2,849 EGNPs issued for Fiscal Year 2016 (July 1, 2015 – June 30, 2016).

An issue that was discovered during the spring 2015 season was the appeal process for the NCDMF's permitting system, which includes the EGNP. General Counsel for the North Carolina Department of Environmental Quality (NCDEQ) deliberated the situation during which time NOVs were not issued (i.e., summer 2015 season). Their findings determined that any NOV issued by the NCDMF for permits can be appealed by the fisherman. However, the permit will still be suspended for the duration of the violation (i.e., 10-days, 30-days, 6-months). The NOV process has since come under scrutiny for certain Specific Permit Conditions outlined in the EGNP. Therefore, the effectiveness of the NCDMF utilizing the EGNP as a compliance tool for the ITP is uncertain. The EGNP and NOV process will be examined by the NCDMF during ITP Year 2017 to determine the best approach moving forward.

LITERATURE CITED

Boyd, J.B. 2012a. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2011 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2012b. North Carolina Fishery Observer Response Team. Final Report to the NOAA National Marine Fisheries Service and Atlantic Coastal Cooperative Statistics Program. Grant Award #NA10NMF4740073. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 24pp.

Boyd, J.B. 2013. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2012 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2015a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2014 Section 10 ITP # 16230 (September 1, 2013 – August 31, 2014). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 32pp.

Boyd, J.B. 2015b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Fall 2015 Section 10 ITP # 16230 (September 1, 2015 – November 30, 2015). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 10pp.

Boyd, J.B. 2016a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2015 Section 10 ITP # 16230 (September 1, 2014 – August 31, 2015). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 45pp.

Boyd, J.B. 2016b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Spring 2016 Section 10 ITP # 16230 (March 1 – May 31, 2016). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 15pp.

Boyd, J.B. 2016c. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Summer 2016 Section 10 ITP # 16230 (June 1 – August 31, 2016). North

Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 14pp.

Brown, K.B., and B. Price. 2005. Evaluation of Low Profile Flounder Gill-net in Southeastern Pamlico Sound, North Carolina. Completion Report for NOAA Award No. NA 04 NMF 4740180 Segment 1. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 24 pp.

Canty, A. and B. Ripley. 2015. boot: Bootstrap R (S-Plus) Functions. R package version 1.3-17.

Davison, A.C., and D.V. Hinkley. 1997. Bootstrap Methods and Their Applications. Cambridge University Press, Cambridge. ISBN 0-521-57391-2.

Efron, B., and R.J. Tibshirani. 1993. An introduction to the bootstrap. Chapman and Hall, New York. 436 pp.

ESA 1973. Endangered Species Act, 1973.

Gearhart, J. 2001. Sea turtle bycatch monitoring of the 2000 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1259. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Gearhart, J. 2002. Sea turtle bycatch monitoring of the 2001 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1348. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 44pp.

Gearhart, J. 2003. Sea turtle bycatch monitoring of the 2002 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 39pp.

Murphey, T. 2011. Sea turtle bycatch monitoring of the 2010 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 4pp.

Price, B. 2004. Sea turtle bycatch monitoring of the 2003 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North

Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Price, B. 2005. Sea turtle bycatch monitoring of the 2004 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 33 pp.

Price, B. 2006. Sea turtle bycatch monitoring of the 2005 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 31 pp.

Price, B. 2007a. Sea turtle bycatch monitoring of the 2006 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 21 pp.

Price, B. 2007b. Estuarine Observer Program in North Carolina. Report to the United States Fish and Wildlife Service. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. Grant No. F-83-R. 44 pp.

Price, B. 2008. Sea turtle bycatch monitoring of the 2007 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 25 pp.

Price, B. 2009a. Sea turtle bycatch monitoring of the 2008 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 22 pp.

Price, B. 2009b. Estuarine Bycatch Assessment in NC Commercial Fisheries. NOAA Award Grant #NA07NMF4740061, under the Atlantic Coastal Cooperative Statistics Program. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 19 pp.

Price, B. 2010a. Sea turtle bycatch monitoring of the 2009 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North

Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 27pp.

Price, B. 2010b. North Carolina Estuarine Gill-net Biological and Bycatch Assessment. Report to NOAA/NMFS and ACCSP under grant award NA05NMF4741032. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 24 pp.

R Core Team. 2015. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

SAS® 2004. SAS® 9.1 Language Reference: Dictionary, Volumes 1, 2, ,3 and 4. SAS Institute, Cary, NC.

TABLES

Table 1. Authorized and actual annual estimated takes with confidence intervals (95%) using a bootstrap method based on observer data for coverage and sea turtle interaction levels in anchored large mesh (≥4 inch stretched mesh) gill nets for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Management Unit											
	B				D1							
	Estimated Takes				Estimated Takes				Total			
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	225	112	78 (0,132)	49 (33,62)	9	5	2 (0,4)	0	234	117	80	49
Kemp's ridley	53	26	65 (12,121)	0	15	7	0	0	68	33	65	0
Total	278	138	143	49	24	12	2	0	302	150	145	49

	Management Unit											
	D2				E							
	Estimated Takes				Estimated Takes				Total			
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	n/a [1]	n/a [1]	n/a [1]	n/a [1]	96	48	69 (7,136)	22 (0,30)	96	48	69	22
Kemp's ridley	6	3	0	0	24	13	13 (0,26)	0	30	16	13	0
Total	6	3	0	0	120	61	82	22	126	64	82	22

[1] Insufficient observer data exist to model an estimated annual take level; therefore, for management unit D2, an annual observed take number has been identified for green turtles, and is found in Table 2

Table 2. Authorized and actual annual observed (not estimated) takes in anchored large mesh (≥4 inch stretched mesh) gill nets for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Management Unit									
	B [1]		D1		D2		E			
	Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Total	
Species	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual
Green	n/a [2]	n/a [2]	n/a [2]	n/a [2]	6	1	n/a [2]	n/a [2]	6	1
Kemp's ridley	n/a [2]	n/a [2]	n/a [2]	n/a [2]	n/a [2]	n/a [2]	n/a [2]	n/a [2]	n/a [2]	n/a [2]
Hawksbill	1	0	1	0	1	0	1	0	4	0
Leatherback	1	0	1	0	1	0	1	0	4	0
Loggerhead	3	0	3	0	3	0	3	0	12	0
Total	5	0	5	0	11	1	5	0	27	1

[1] One sea turtle interaction occurred in both management unit B and E where the species identification was unable to be determined; therefore it was not counted towards actual take levels

[2] Insufficient observer data exist to model an estimated annual take level for Kemp's ridley sea turtles in management units B, D1, D2 and E. See Table 1 for the authorized annual estimated take level

Table 3. Authorized and actual annual observed (not estimated) takes in anchored large mesh (≥4 inch stretched mesh) and anchored small mesh (<4 inch stretched mesh) gill nets combined for ITP Year 2016 (September 1, 2015 - August 31, 2016).

Species	Management Unit				Total	
	A [1]		C			
	Authorized (live/dead)	Actual (live/dead)	Authorized (live/dead)	Actual (live/dead)	Authorized (live/dead)	Actual (live/dead)
Green, Hawksbill, Kemp's ridley, Leatherback, Loggerhead	4 (any species)	4 (any species)	4 (any species)	2 (any species)	8 (any species)	6 (any species)
Total	4	4	4	2	8	6

[1] One sea turtle interaction occurred in management unit A where the species identification was unable to be determined. However, it was counted towards total observed take levels

Table 4. Authorized and actual annual observed (not estimated) takes in anchored small mesh (<4 inch stretched mesh-ISM) gill nets for ITP Year 2016 (September 1, 2015 - August 31, 2016).

Species	Management Unit									
	B		D1		D2		E		Total	
	Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)			
	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual
Green	3	1	3	1	3	0	3	3	12	5
Hawksbill	1	0	1	0	1	0	1	0	4	0
Kemp's ridley	3	0	3	0	3	0	3	0	12	0
Leatherback	1	0	1	0	1	0	1	0	4	0
Loggerhead	3	0	3	0	3	0	3	0	12	0
Total	11	1	11	1	11	0	11	3	44	5

Table 5. Total annual authorized and actual takes (estimated and observed) by species and condition for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Observed (live/dead)		Estimated			
			Authorized		Actual	
Species	Authorized	Actual	Alive	Dead	Alive	Dead
Green	18	8	330	165	149	71
Hawksbill	8	0	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Kemp's ridley	12	3	98	49	78	0
Leatherback	8	0	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Loggerhead	24	0	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Any Species	8	3[1]	n/a[2]	n/a[2]	n/a[2]	n/a[2]
Total	78	14	428	214	227	71

[1] Species identification unknown

[2] Insufficient observer data exist to model an estimated annual take level; therefore, takes are expressed as observed

Table 6. Categories and descriptions of fisherman responses for the Observer Program's contact logs used for analysis.

Categories	Category description
1	Left message with someone else
2	Not fishing general
3	Fishing other gear
4	Not fishing because of weather
5	Not fishing because of boat issues
6	Not fishing because of medical issues
7	Booked trip
8	Hung up, got angry, trip refused
9	Call back later time/date
10	Saw in person
11	Disconnected
12	Wrong number
13	No answer
14	No answer, left voicemail

Table 7. Regulations for management units by date and regulation change for anchored large and small mesh gill nets for ITP Year 2016 (September 1, 2015 - August 31, 2016).

Year	Date(s)	Regulation change
2015	Sept 1	Management unit A opened to anchored large and small mesh gill nets for the new ITP Year 2016 for the western part of the sound and Currituck Sound. All the eastern/southern areas (Croatan and Roanoke Sounds) will remain closed until early October to minimize interactions with sea turtles (M-13-2015).
2015	Sept 1	Management unit C opened to anchored large and small mesh gill nets for the new ITP Year 2016 (M-14-2015).
2015	Sept 1	Management unit E closed to anchored large mesh gill nets for the new ITP Year 2016 to minimize interactions with sea turtles (M-14-2015).
2015	Sept 1	Management unit B to remain closed to anchored large mesh gill nets to minimize interactions with sea turtles (M-14-2015).
2015	Sept 24	Management unit C closed to anchored large mesh gill nets due to approaching Atlantic sturgeon authorized takes for the Fall 2015 Season (M-15-2015).
2015	Sept 30	Management unit A to opened to anchored large and small mesh gill nets for the new ITP Year 2016 for the western part of the sound. All the eastern/southern areas (south and east of line from Alligator River to 158 Bridge including Croatan and Roanoke Sounds) will open with south of the 64 bridge having sea turtle restrictions (i.e., overnight soaks, 4-day fishing week) (M-16-2015).
2015	Sept 30	Management units B and E opened to anchored large mesh gill nets (M-17-2015)
2015	Oct 17	Management unit B subunits closed to anchored large mesh gill nets except the MGNRA due to sea turtle interactions (M-20-2015).
2015	Oct 17	Management unit A closed to anchored large and small mesh gill nets due to sea turtle interactions (M-21-2015).
2015	Oct 26	Portions of Management unit A opened to anchored large and small mesh gill nets (west of line from Laurel Point and Drummond Point and Currituck Sound (M-22-2015).
2015	Nov 2	Management unit A opened to anchored large and small mesh gill nets the western part of the sound. All the eastern/southern areas (south and east of line from Alligator River to 158 Bridge including Croatan and Roanoke Sounds) will remain closed (M-23-2015).
2015	Nov 2	Management unit D1 and remaining subunits of management unit B opened to anchored large mesh gill nets (M-24-2015).
2015	Nov 5	Management unit B closed to anchored large mesh gill nets due to sea turtle interactions (M-25-2015).

Table 7. (cont.).

Year	Date(s)	Regulation change
2016	Feb 15	Management units B and C opened to anchored large mesh gill nets (M-1-2016).
2016	Feb 22	Management unit E (in portions) implements gear restrictions for the shad fishery (M-1-2016).
2016	Mar 3	Management unit A implements additional gill net restrictions for Subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs (four nights per week (Tuesday - Friday) with 15 meshes deep, a maximum of 2,000 yards with 100-yards of continuous net, leaded bottom lines, prohibited to use floats, and must leave a space of 25-yards between sections of net; M-2-2016).
2016	April 10	Portions of Management unit E (upper Cape Fear River) closed to anchored large mesh gill nets due to sturgeon interactions (M-5-2016).
2016	April 23	Management unit A closed to anchored large mesh gill nets for the remainder of the spring 2016 season due to reaching authorized dead Atlantic sturgeon takes (M-6-2016).
2016	May 4	Management unit E closed to anchored small mesh gill nets for remainder of ITP Year 2016 due to reaching authorized sea turtle takes (M-8-2016).
2016	May 9	Management unit D1 closed to anchored large mesh gill nets (proclamation M-9-2016).**Annual ITP closure***
2016	June 1	Portions of management unit A opened to anchored large mesh gill nets (western) while maintaining closure of all anchored gill nets in the eastern portions to avoid interactions with sea turtles (M-10-2016).
2016	June 6	Management unit B closed to anchored large mesh gill nets for remainder of ITP Year 2016 due to reaching authorized sea turtle takes (M-12-2016).
2016	June 7	Management unit A closed to anchored large and small mesh gill nets for remainder of ITP Year 2016 due to reaching authorized sea turtle takes (M-13-2016).

Table 8. Observer coverage calculated from previous year's trip ticket data and observer data for anchored large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Large Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage [3]
Fall 2015	A	2,258	205	9.1
	B	424	63	14.9
	C	366	58	15.8
	D1	7	7	100.0
	D2	320	27	8.4
	E	518	36	6.9
Spring 2016	A	1,351	138	10.2
	B	568	38	6.7
	C	878	71	8.1
	D1	25	0	0.0
	D2	67	3	4.5
	E	279	52	18.7
Summer 2016	A	25	5	20.0
	B	13	3	23.1
	C	653	58	8.9
	D1	n/a	n/a	n/a
	D2	125	21	16.8
	E	488	98	20.1
Total		8,366	883	10.6

[1] Final trip ticket data for 2015 (Fall 2015) and preliminary trip ticket data for 2016 (Spring and Summer 2016)

[2] Table 7 contains all of the openings and closings for each management unit

[3] Based on final trip ticket data for 2015 (Fall 2015) and the 5-year average trip ticket data for 2016 (Spring and Summer 2016) compared to observer large mesh trips

Table 9. Observer coverage calculated from previous year's trip ticket data and observer data for anchored small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Small Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage [3]
Fall 2015	A	358	10	2.8
	B	706	9	1.3
	C	95	7	7.4
	D1	26	6	23.1
	D2	195	17	8.7
	E	547	29	5.3
Spring 2016	A	1,311	29	2.2
	B	1,295	28	2.2
	C	263	7	2.7
	D1	39	6	15.3
	D2	42	1	2.4
	E	201	10	5.0
Summer 2016	A	17	0	0.0
	B	1,035	7	0.7
	C	363	7	1.9
	D1	12	1	8.3
	D2	66	3	4.5
	E	n/a	n/a	n/a
Total		6,571	177	2.7

[1] Final trip ticket data for 2015 (Fall 2015) and preliminary trip ticket data for 2016 (Spring and Summer 2016)

[2] Table 7 contains all of the openings and closings for each management unit

[3] Based on final trip ticket data for 2015 (Fall 2015) and the 3-year average trip ticket data for 2016 (Spring and Summer 2016) compared to observer small mesh trips

Table 10. Summary of observed sea turtle interactions in anchored large (n = 49) and small (n = 5) mesh gill nets through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

						Tag		Curved Carapace (mm)	
Date	Management Unit	Latitude	Longitude	Species	Disposition	PIT	Inconel	Length	Width
9/17/2015	C	35.35521	76.73609	green	alive	982.000364298089	n/a	291	252
10/9/2015	E	33.97131	77.92719	green [1]	alive	989.001001951690	EET849	352	289
10/9/2015	B	34.82598	76.42235	green	dead	n/a	n/a	325	285
10/9/2015	B	34.82598	76.42235	green	dead	n/a	n/a	290	245
10/9/2015	B	34.82598	76.42235	green	dead	n/a	n/a	260	230
10/9/2015	B	34.99605	76.25909	green	alive	989.001001951719	n/a	260	220
10/9/2015	B	34.99605	76.25909	green	alive	989.001001951688	XXP528	360	300
10/9/2015	B	34.82598	76.42235	green	alive	n/a	n/a	n/a	n/a
10/9/2015	B	34.86173	76.38188	green	alive	n/a	n/a	267	241
10/13/2015	B	34.94096	76.22081	green	alive	4B186D0165	n/a	270	225
10/13/2015	E	34.40409	77.59546	green	alive	989.001001951706	EET850/EET848	315	279
10/14/2015	A	36.00106	75.79977	Kemp's	dead	n/a	n/a	355	360
10/15/2015	B	34.86188	76.40993	green	alive	989.001001952804	n/a	302	250
10/15/2015	B	34.85750	76.41089	green	alive	989.001001951696	n/a	281	238
10/15/2015	B	34.85187	76.40974	green	alive	989.001001952771	n/a	310	267
10/15/2015	A	35.99273	76.26373	unknown	alive	n/a	n/a	n/a	n/a
10/16/2015	B	34.95572	76.27612	green	alive	n/a	n/a	n/a	n/a
10/16/2015	B	35.30542	75.55242	Kemp's	alive	989.001001951949	XXP545	310	320
10/28/2015	B	35.03148	76.34999	green	alive	989.001001952717	n/a	295	250
11/4/2015	B	34.99644	76.26168	green	dead	n/a	n/a	330	280
11/4/2015	B	34.99427	76.24520	green	alive	989.001001951697	n/a	260	230
11/4/2015	B	34.99427	76.24520	green	alive	989.001001951935	n/a	280	250
11/4/2015	B	34.99501	76.24482	green	alive	989.001001951764	XXP405	310	270
11/4/2015	B	35.28052	75.55285	green	alive	n/a	n/a	n/a	n/a
11/4/2015	B	35.28052	75.55285	green	alive	n/a	n/a	n/a	n/a
11/4/2015	B	35.28052	75.55285	green	alive	n/a	n/a	n/a	n/a
11/4/2015	B	35.28083	75.55405	green	alive	n/a	n/a	n/a	n/a

[1] Indicates small mesh gear

Table 10. (cont.).

Date	Management Unit	Latitude	Longitude	Species	Disposition	Tag		Curved Carapace (mm)	
						PIT	Inconel	Length	Width
11/4/2015	B	35.27993	75.55545	green	alive	n/a	n/a	n/a	n/a
11/11/2015	D1	34.69143	76.49080	green [1]	alive	989.001001952698	n/a	301	264
11/12/2015	D1	34.78495	76.42412	green	alive	n/a	n/a	330	279
11/12/2015	D1	34.78495	76.42412	green	alive	n/a	n/a	304	250
3/29/2016	B	34.87328	76.36694	green [1]	alive	989.001001951731	n/a	262	220
4/29/2016	E	33.97506	77.92197	green [1]	dead	n/a	n/a	281	253
4/29/2016	E	33.97506	77.92197	green [1]	alive	n/a	n/a	n/a	n/a
5/13/2016	B	34.98833	76.24257	Kemp's	alive	982.000364358551/ 3D6.0015B7AB97	XXP602/XXP538	340	330
5/19/2016	B	35.01501	76.18875	green	dead	n/a	n/a	307	253
5/26/2016	B	35 40.556	75 30.500	unknown	alive	n/a	n/a	n/a	n/a
6/3/2016	B	35.67877	75.51375	green	alive	n/a	n/a	n/a	n/a
6/3/2016	B	35.68895	75.51233	Kemp's	alive	n/a	n/a	300	300
6/3/2016	B	35.68788	75.51173	Kemp's	alive	n/a	n/a	294	307
6/3/2016	B	35.28800	76.49800	green	dead	n/a	n/a	273	229
6/6/2016	A	36.17042	76.06388	Kemp's	alive	982.000364296910	XXP484	370	375
6/6/2016	A	36.18794	76.06252	Kemp's	dead	n/a	n/a	290	290
7/1/2016	E	34.26232	77.76476	green	dead	n/a	n/a	334	280
7/7/2016	D2	34.68766	77.02272	green	alive	982.000364297237/ 982.000364301041	n/a	305	265
7/14/2016	E	33.97233	77.92189	green	alive	n/a	n/a	n/a	n/a
7/14/2016	E	33.97160	77.92764	green	dead	n/a	n/a	305	275
7/14/2016	E	34.66973	77.15123	Kemp's	alive	n/a	n/a	n/a	n/a
7/14/2016	E	34.66973	77.15123	unknown	alive	n/a	n/a	n/a	n/a
7/21/2016	E	34.67767	77.16055	Kemp's	alive	982.000364296732	XXP663/XXP665	380	385
8/3/2016	E	34.40041	77.59606	green	alive	982.000364297456	n/a	340	290
8/12/2016	C	35.19078	76.53419	green	alive	982.000364297488	n/a	315	265
8/16/2016	E	34.01200	77.91645	green	alive	982.000364216511	UUE080	608	482
8/25/2016	E	34.54690	77.33181	green	alive	982.000364306006	n/a	232	196

[1] Indicates small mesh gear

Table 11. Summary of reported sea turtle interactions in large mesh gill nets through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

						Curved Carapace (mm)	
Date	Management Unit	Latitude	Longitude	Species	Disposition	Length	Width
5/8/2016	E	34.5821	77.3906	green [1]	dead	n/a	n/a
5/14/2016	C	n/a	n/a	unknown	alive	n/a	n/a
5/14/2016	C	n/a	n/a	unknown	alive	n/a	n/a
5/26/2016	B	35.7062	75.5367	Kemp's [2]	alive	n/a	n/a

[1] Reported by Marine Patrol from abandoned large mesh gill net

[2] Reported by Marine Patrol from illegally set large mesh gill net

Table 12. Number of gill-net checks made and citations issued by Marine Patrol for large and small mesh gill nets by season during ITP Year 2016 (September 1, 2015 - August 31, 2016).

Season	# Gill Net Checks	# Citations
Fall 2015	909	38
Spring 2016	286	16
Summer 2016	283	0
Total	1,478	54

Table 13. Citations written by Marine Patrol for large and small mesh gill nets by season and violation code during ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Violation		
Season	Date	Code	Description
Fall 2015	9/7/2015	NETG29	RCGL gear without proper buoys
	9/10/2015	NETG01	Leave gill net in coastal waters unattended
	9/10/2015	NETG37	Leave small mesh gill nets unattended
	9/11/2015	NETG03	Using gill net with improper buoys or identification
	9/12/2015	NETG22	Improperly set gill net
	9/17/2015	NETG09	Gill net set too close to bridge
	9/21/2015	NETG03	Using gill net with improper buoys or identification
	9/29/2015	NETG01	Leave gill net in coastal waters unattended
	10/7/2015	NETG03	Using gill net with improper buoys or identification
	10/7/2015	NETG29	RCGL gear without proper buoys
	10/9/2015	NETG22	Improperly set gill net
	10/9/2015	NETG39	Use large mesh gill nets more than 15 meshes in height and w/out lead core or leaded bottom
	10/9/2015	NETG44	Use large mesh gill nets w/out leaving a space of at least 25 yard between separate lengths
	10/10/2015	NETG22	Improperly set gill net
	10/13/2015	NETG03	Using gill net with improper buoys or identification
	10/13/2015	NETG34	Use unattended gill net w/mesh less than 5" in commercial operation from May 1 through Nov
	10/14/2015	NETG29	RCGL gear without proper buoys
	10/15/2015	NETG01	Leave gill net in coastal waters unattended
	10/15/2015	NETG04	Leave gill net in waters when could not be legally fished
	10/17/2015	NETG03	Using gill net with improper buoys or identification
	10/18/2015	NETG29	RCGL gear without proper buoys
	10/20/2015	NETG03	Using gill net with improper buoys or identification
	10/21/2015	NETG01	Leave gill net in coastal waters unattended
	10/21/2015	NETG02	Using gill net without buoys or identification
	10/23/2015	NETG03	Using gill net with improper buoys or identification
	10/23/2015	NETG29	RCGL gear without proper buoys
	10/30/2015	NETG03	Using gill net with improper buoys or identification
	11/6/2015	NETG03	Using gill net with improper buoys or identification
	11/6/2015	NETG05	Use a stationery gill net in channel of ICWW
	11/7/2015	NETG01	Leave gill net in coastal waters unattended
	11/7/2015	NETG01	Leave gill net in coastal waters unattended
	11/11/2015	NETG29	RCGL gear without proper buoys
	11/11/2015	NETG46	Set or retrieve large mesh gill nets later than one hour after sunrise on Tuesday through Friday
	11/11/2015	NETG53	Use large mesh gill net with corks or floats on top line
	11/12/2015	NETG01	Leave gill net in coastal waters unattended
	11/14/2015	NETG03	Using gill net with improper buoys or identification
	11/23/2015	NETG12	Net in middle third of marked navigational channel
	11/24/2015	NETG03	Using gill net with improper buoys or identification

Table 13. (cont.).

Season	Violation		
	Date	Code	Description
Spring 2016	3/11/2016	NETG03	Using gill net with improper buoys or identification
	3/27/2016	NETG10	Gill net with illegal mesh size
	4/8/2016	NETG03	Using gill net with improper buoys or identification
	4/8/2016	NETG03	Using gill net with improper buoys or identification
	4/8/2016	NETG10	Gill net with illegal mesh size
	4/14/2016	NETG10	Gill net with illegal mesh size
	4/14/2016	NETG10	Gill net with illegal mesh size
	4/14/2016	NETG10	Gill net with illegal mesh size
	4/14/2016	NETG22	Improperly set gill net
	4/14/2016	NETG22	Improperly set gill net
	4/14/2016	NETG22	Improperly set gill net
	4/14/2016	NETG22	Improperly set gill net
	5/6/2016	NETG09	Gill net set too close to bridge
	5/10/2016	NETG01	Leave gill net in coastal waters unattended
	5/17/2016	NETG01	Leave gill net in coastal waters unattended
	5/26/2016	NETG03	Using gill net with improper buoys or identification

Table 14. Contacts attempted (n = 11,778) by the observers trying to set up trips by season categorized by contact type (0-14) and by total number, percent for each season, and percent for the entire ITP Year 2016 for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Categories (%) [1]														
Season	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Fall 2015	155	897	286	115	60	85	263	17	564	68	160	40	452	1,451	4,613
	3.4%	19.4%	6.2%	2.5%	1.3%	1.8%	5.7%	0.4%	12.2%	1.5%	3.5%	0.9%	9.8%	31.5%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Spring 2016	104	727	192	11	43	30	110	6	336	72	126	22	419	971	3,169
	3.3%	22.9%	6.1%	0.3%	1.4%	0.9%	3.5%	0.2%	10.6%	2.3%	4.0%	0.7%	13.2%	30.6%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Summer 2016	129	794	247	27	45	72	100	15	366	26	245	47	547	1,336	3,996
	3.2%	19.9%	6.2%	0.7%	1.1%	1.8%	2.5%	0.4%	9.2%	0.7%	6.1%	1.2%	13.7%	33.4%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Total	388	2,418	725	153	148	187	473	38	1,266	166	531	109	1,418	3,758	11,778
	3.3%	20.5%	6.2%	1.3%	1.3%	1.6%	4.0%	0.3%	10.7%	1.4%	4.5%	0.9%	12.0%	31.9%	100.0%

[1] Contact type categories: 1) Left message with someone else 2) Not fishing general 3) Fishing other gear 4) Not fishing because of weather 5) Not fishing because of boat issues 6) Not fishing because of medical issues 7) Booked trip 8) Hung up, got angry, trip refused 9) Call back later time/date 10) Saw in person 11) Disconnected 12) Wrong number 13) No answer 14) No answer, left voicemail

Table 15. Notice of Violations issued by season, date and violation code for the Estuarine Gill Net Permit for ITP Year 2016 (September 1, 2015 - August 31, 2016).

Season	Date	Code	Description
Fall 2015	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/22/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/22/2015	EGNP11	Failure to attend nets
	10/22/2015	EGNP12	Failure to return observers' phone calls within a 14-day period
	10/22/2015	EGNP25	Refuse to allow fisheries observers onboard or collect data
	10/22/2015	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	10/26/2015	EGNP08	Failure to notify DMF of a change in phone number within 14 days
	11/5/2015	EGNP11	Failure to attend nets
	11/17/2015	EGNP09	Failure to set or retrieve nets in accordance with time restrictions
Spring 2016	3/1/2016	EGNP10	Set more than the legal length of gill net
	5/4/2016	EGNP09	Failure to set or retrieve nets in accordance with time restrictions
	5/4/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	5/4/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	5/16/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	5/17/2016	EGNP25	Refuse to allow fisheries observers onboard or collect data

FIGURES

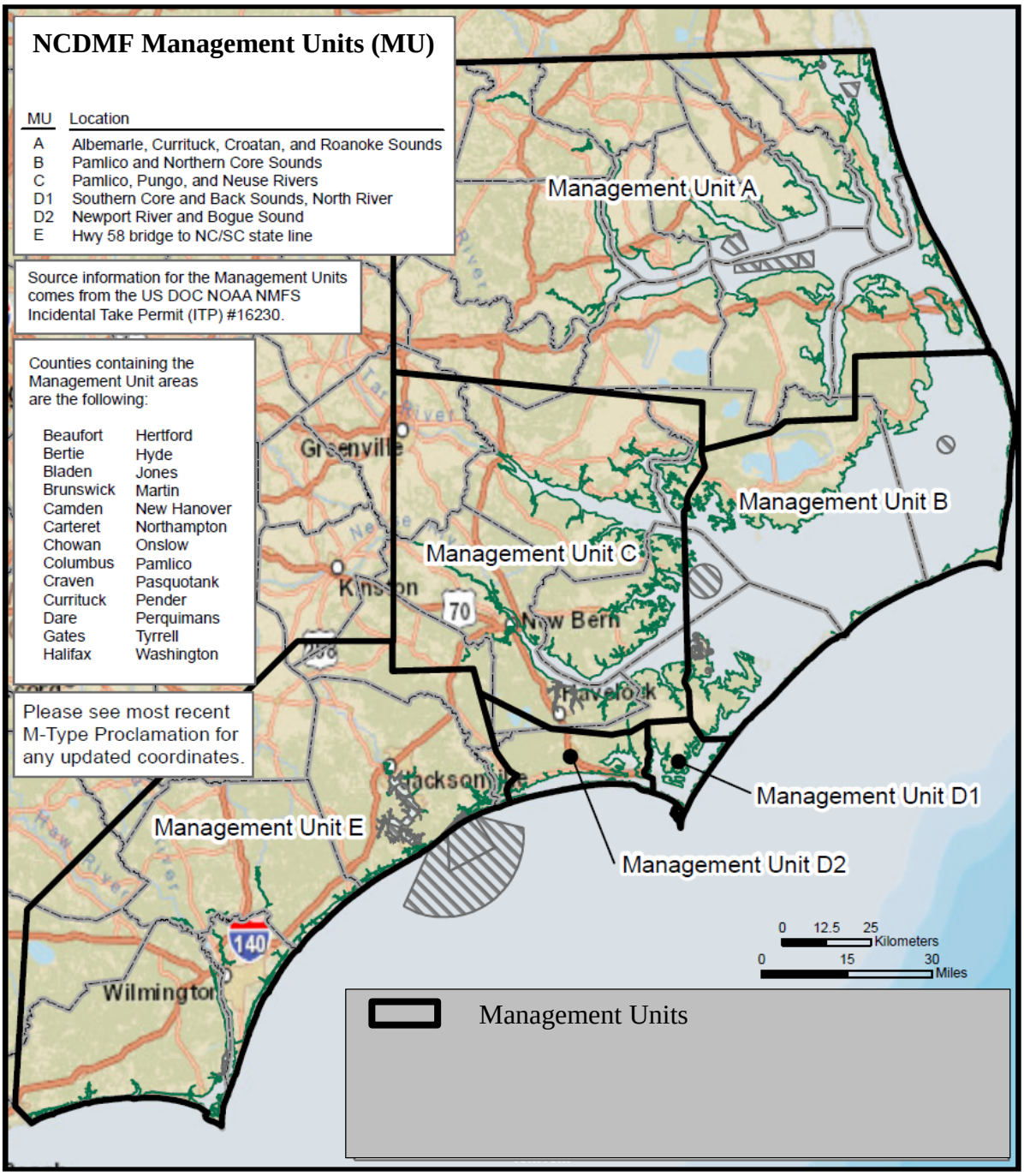


Figure 1. Management units (A, B, C, D1, D2, and E) as outlined in the Conservation Plan and utilized by the Observer Program for ITP Year 2016 (September 1, 2015 – August 31, 2016).

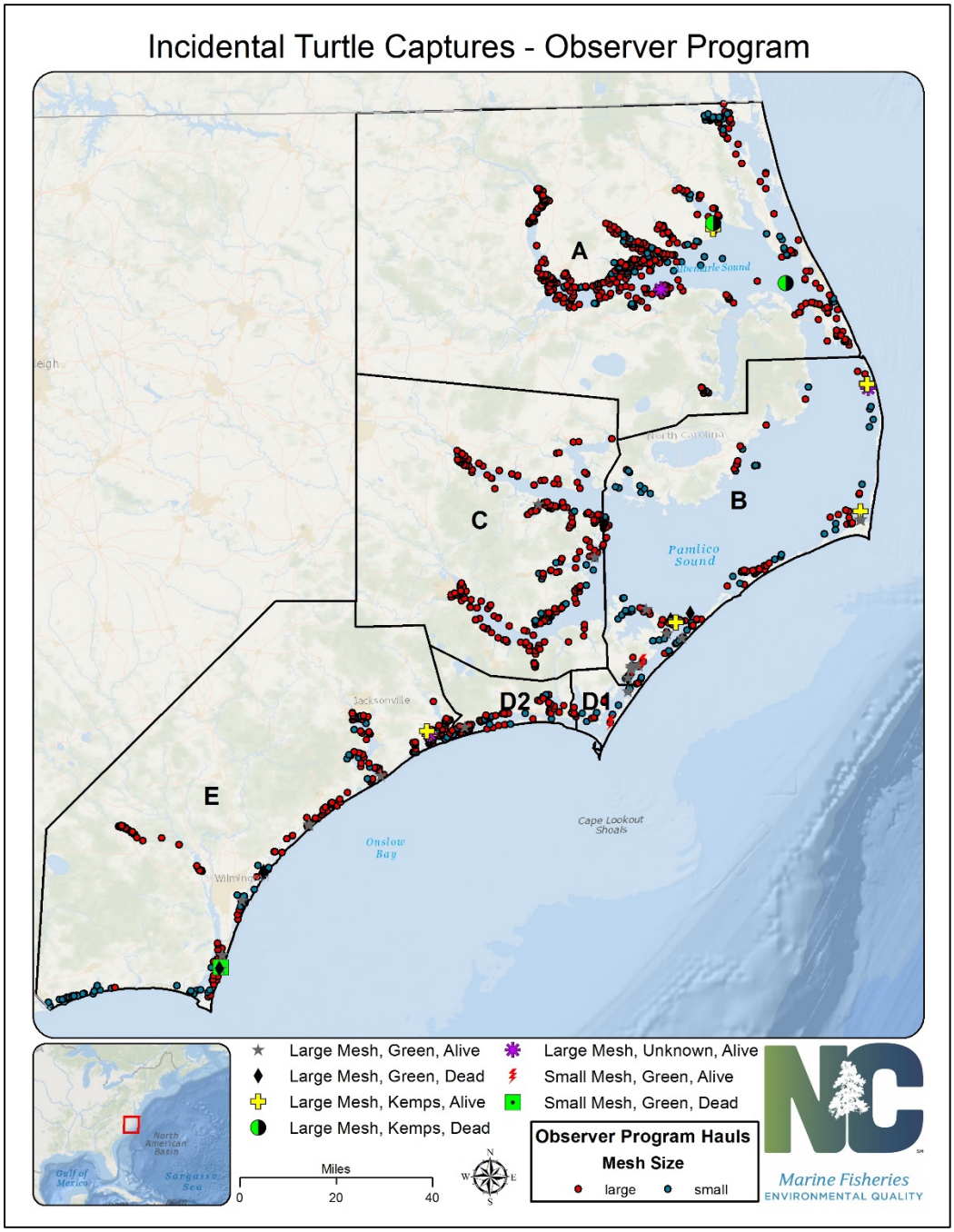


Figure 2. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear throughout all management units for ITP Year 2016 (September 1, 2015 – August 31, 2016).

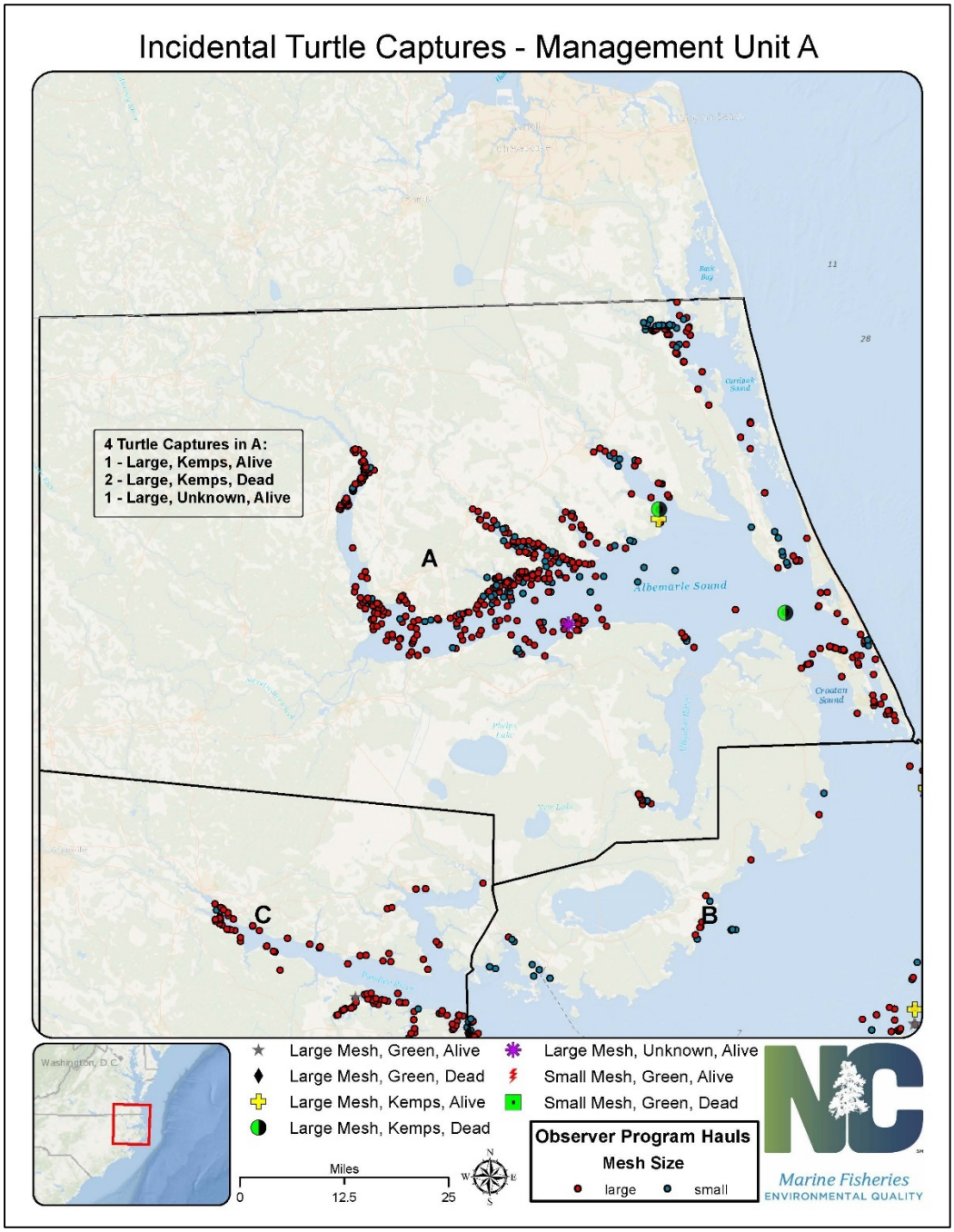


Figure 3. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit A for ITP Year 2016 (September 1, 2015 – August 31, 2016).

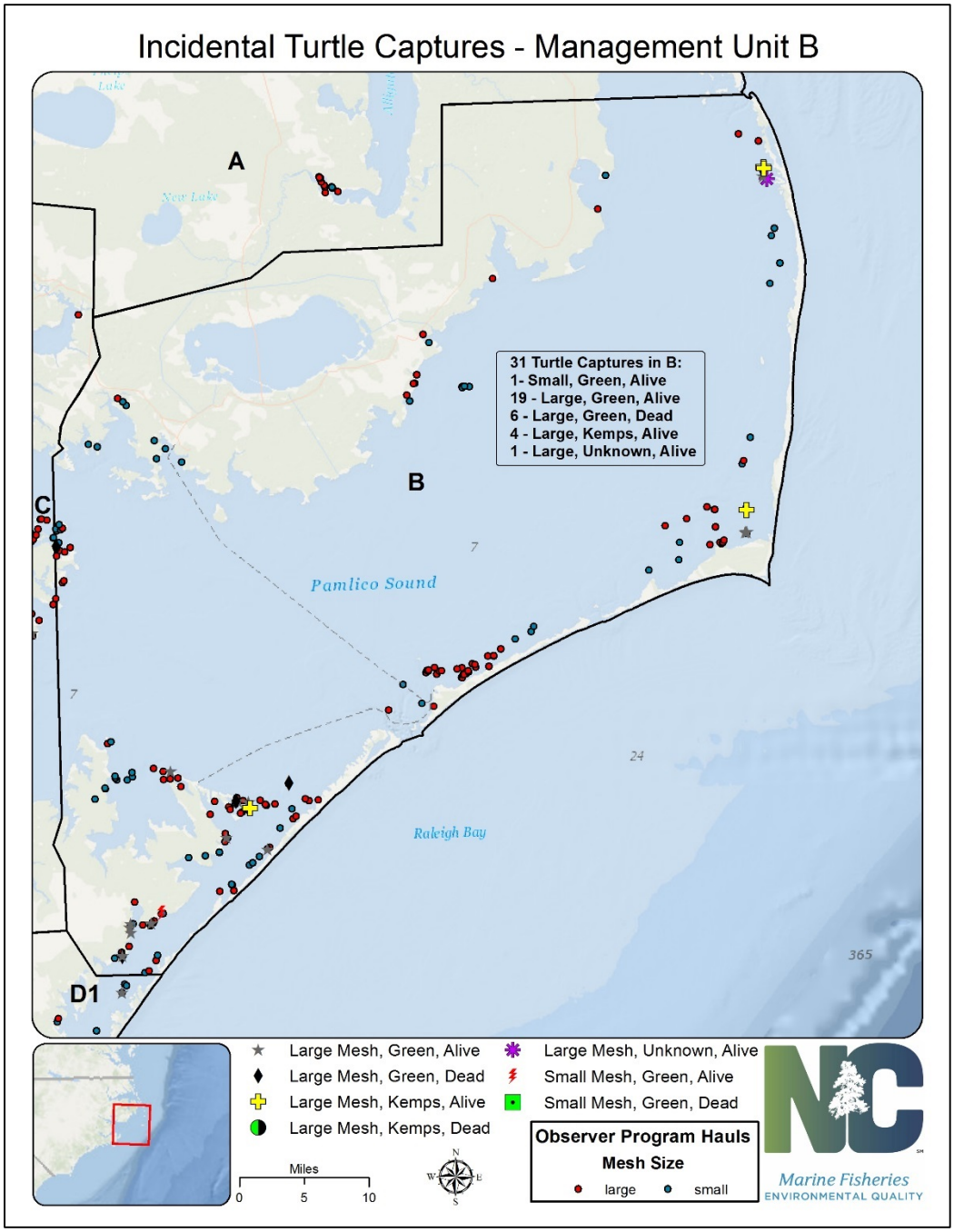


Figure 4. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit B for ITP Year 2016 (September 1, 2015 – August 31, 2016).

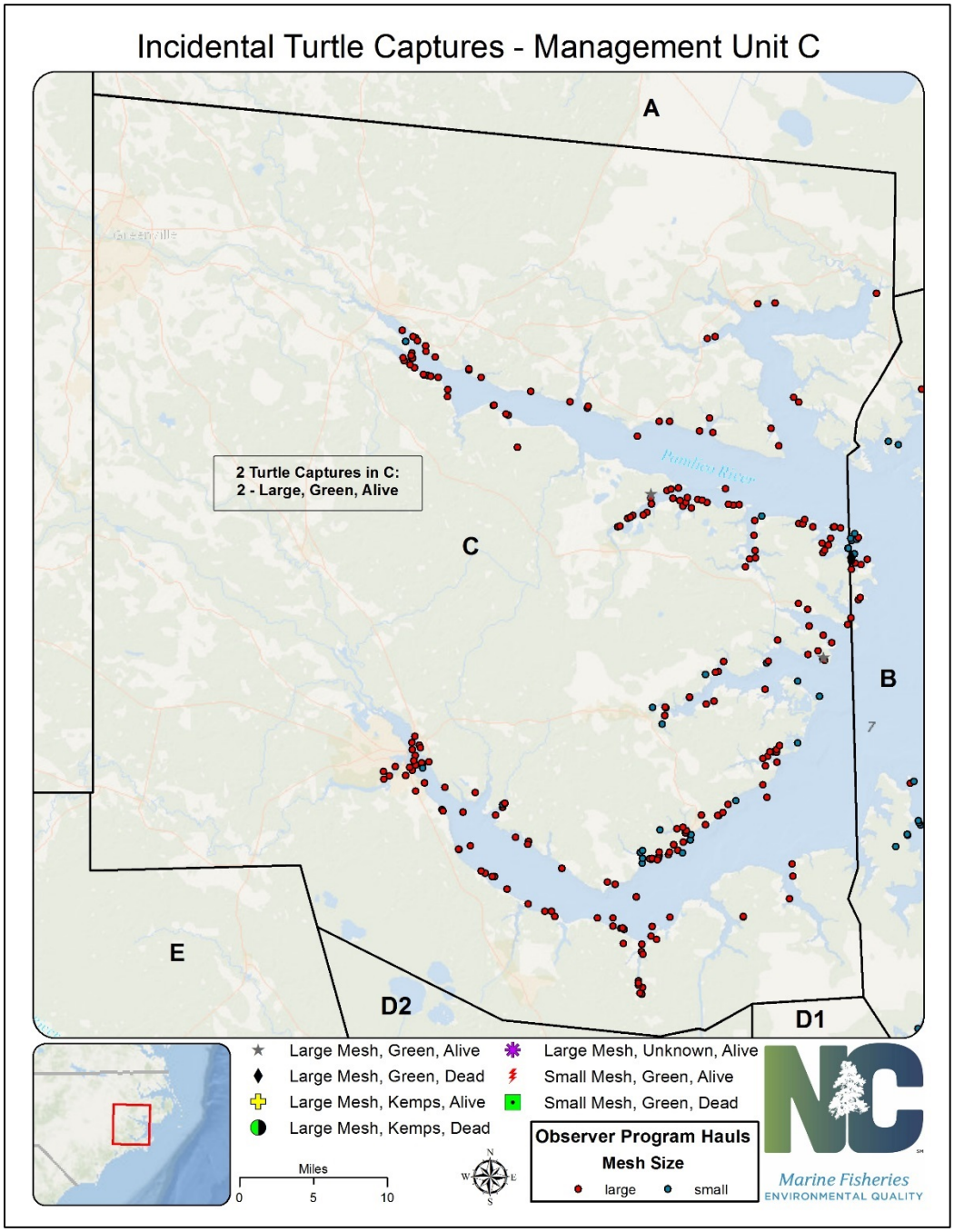


Figure 5. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit C for ITP Year 2016 (September 1, 2015 – August 31, 2016).

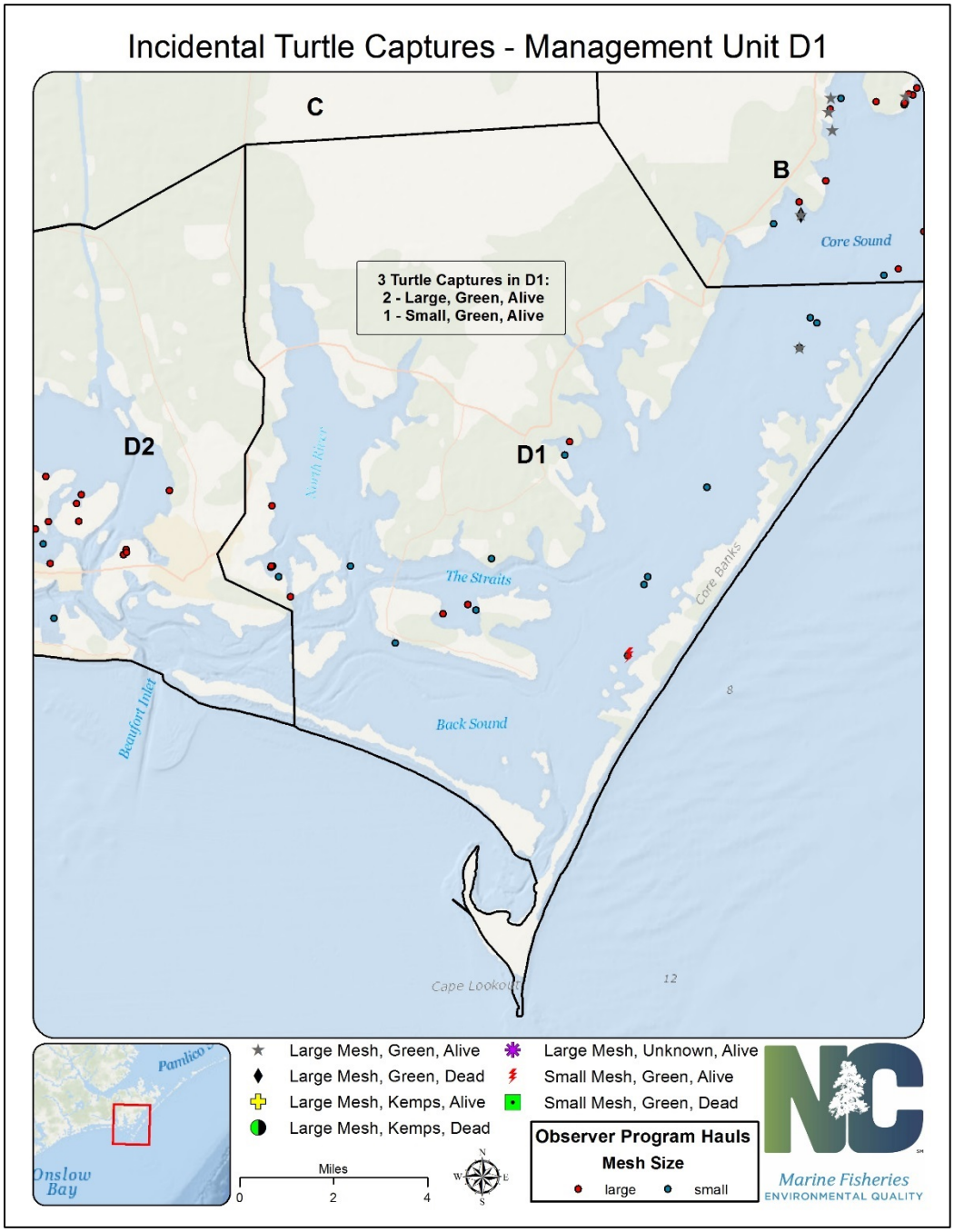


Figure 6. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit D1 for ITP Year 2016 (September 1, 2015 – August 31, 2016).

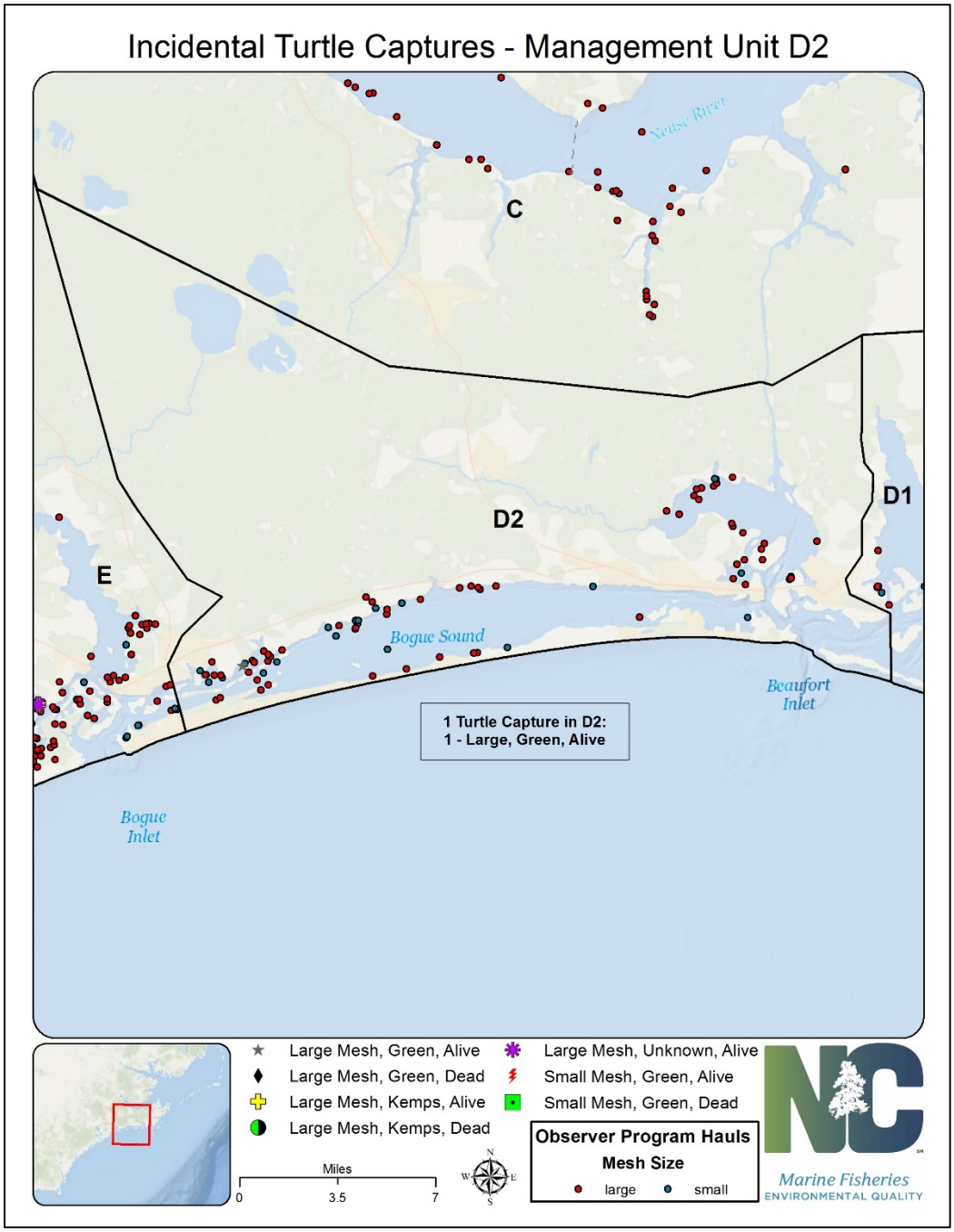


Figure 7. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit D2 for ITP Year 2016 (September 1, 2015 – August 31, 2016).

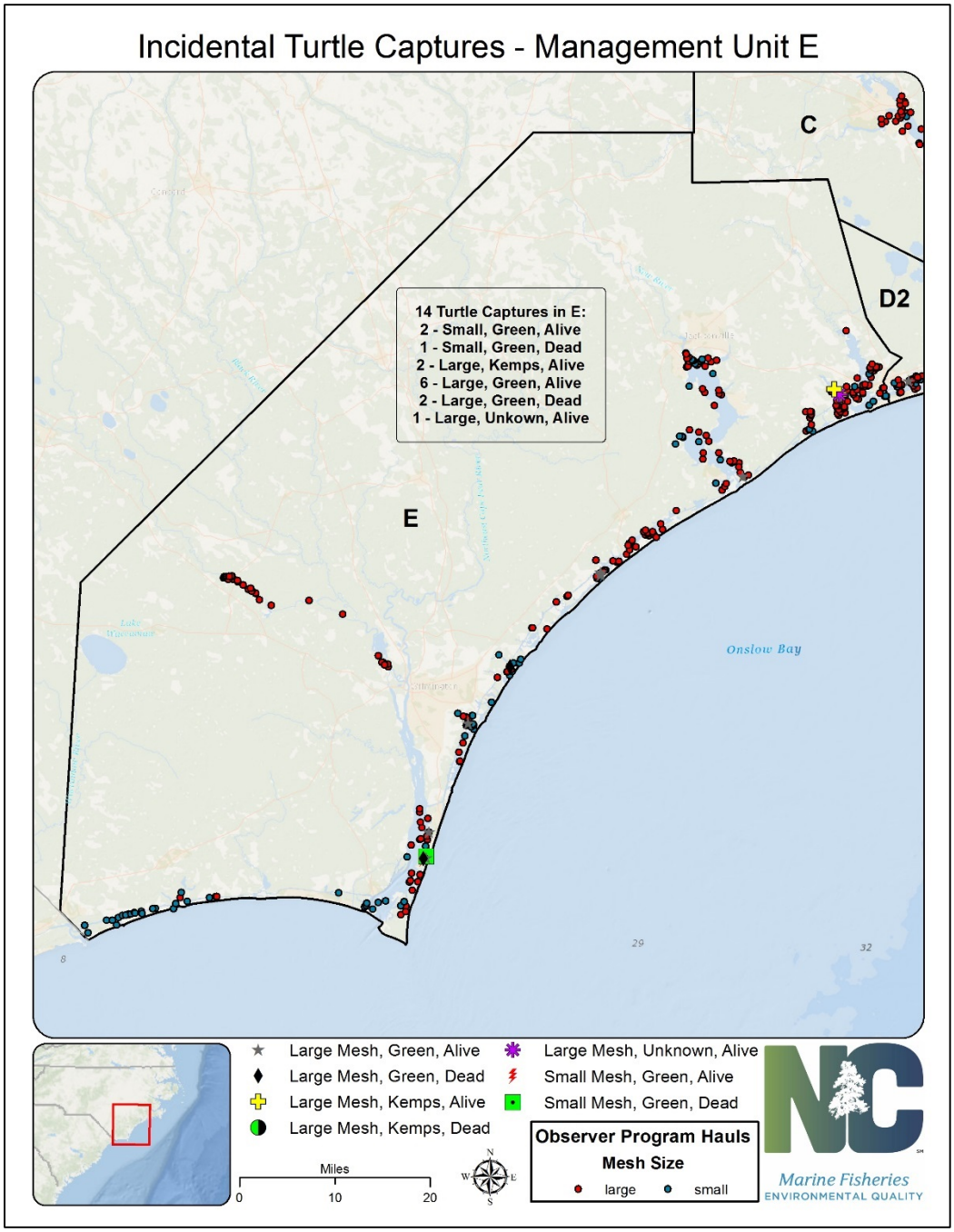


Figure 8. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit E for ITP Year 2016 (September 1, 2015 – August 31, 2016).

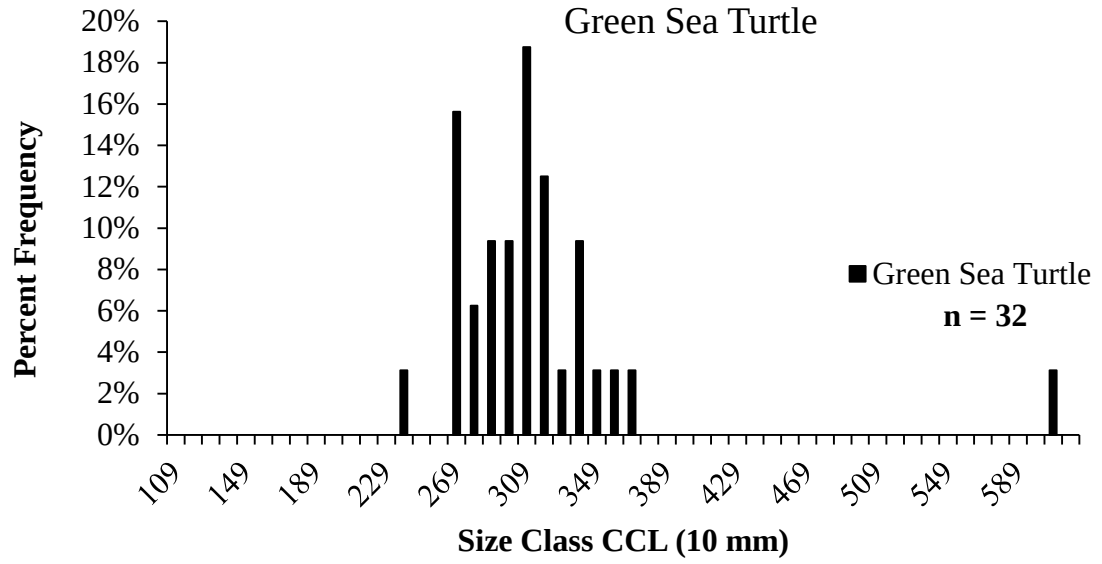


Figure 9. Length-frequency (curved carapace length) from notch to tip of observed incidental captures of green sea turtles where measurements were obtained (n = 32) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2016 (September 1, 2015 – August 31, 2016).

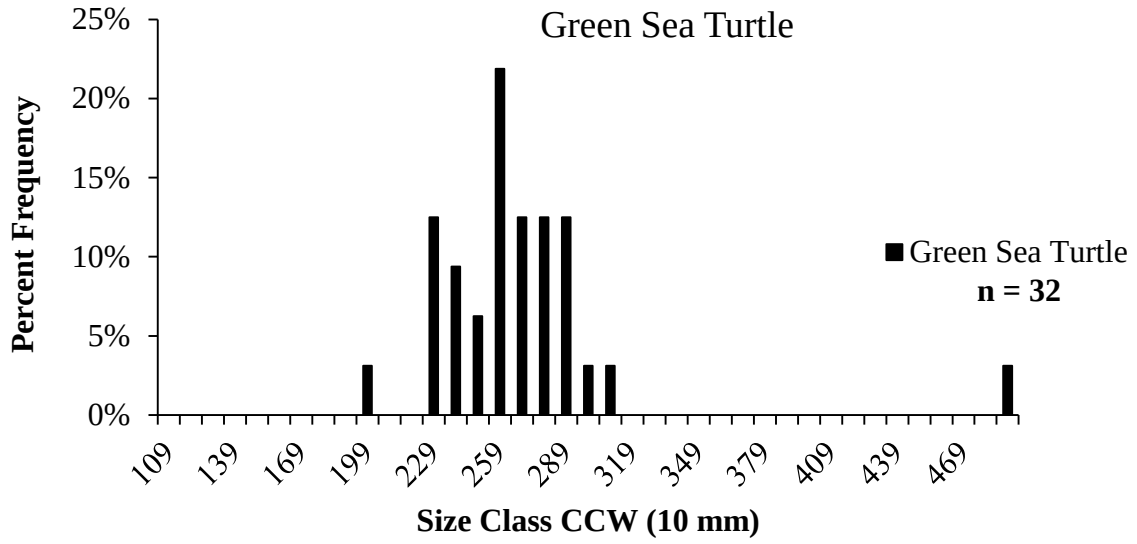


Figure 10. Length-frequency (curved carapace width) of observed incidental captures of green sea turtles where measurements were obtained (n = 32) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2016 (September 1, 2015 – August 31, 2016).

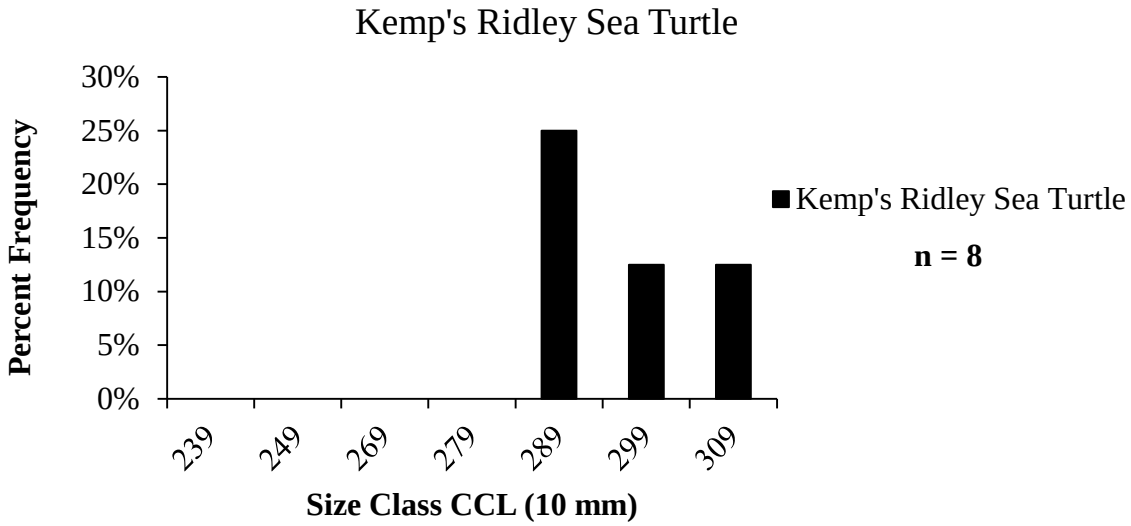


Figure 11. Length-frequency (curved carapace length) from notch to tip of observed incidental captures of Kemp's ridley sea turtles where measurements were obtained (n = 8) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2016 (September 1, 2015 – August 31, 2016).

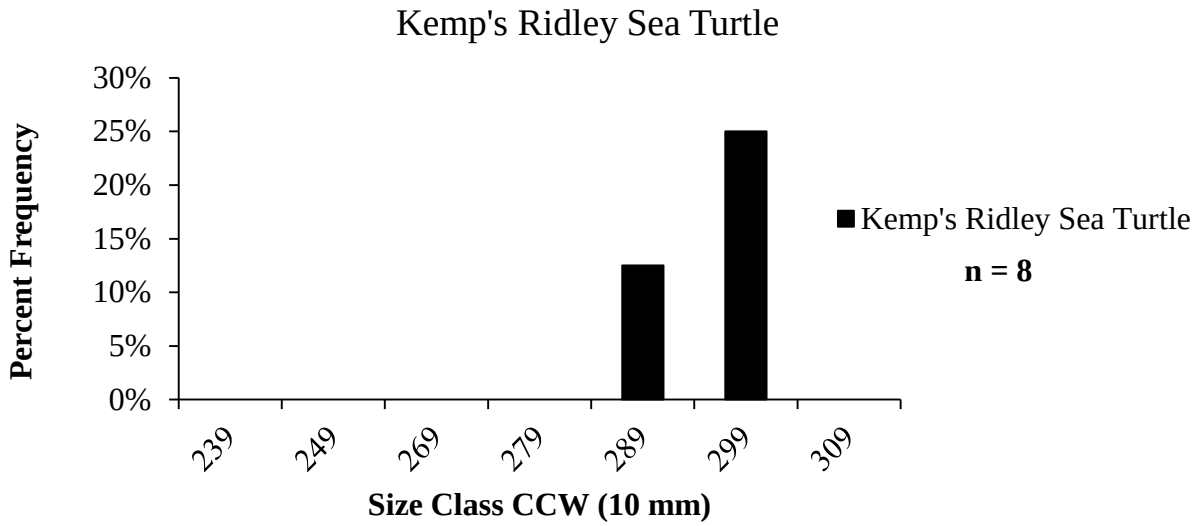


Figure 12. Length-frequency (curved carapace width) from notch to tip of observed incidental captures of Kemp's ridley sea turtles where measurements were obtained (n = 8) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2016 (September 1, 2015 – August 31, 2016).

APPENDIX A

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JAN 4 2017

Braxton C. Davis
Director, North Carolina Division of Marine Fisheries
3441 Arendell Street
P.O. Box 769
Morehead City, North Carolina 28557

Dear Mr. Davis:

On November 21, 2016, the North Carolina Division of Marine Fisheries (NCDMF) requested a minor modification to extend the future annual report deadlines for the Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) Incidental Take Permits from January 31 to the last day in February. You note that this extension would benefit your staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability.

We appreciate the challenges associated with staff availability and the data accessibility at this time of year, and this delay will not significantly impact our ability to review the annual report. National Marine Fisheries Service (NMFS) therefore concurs with your request for this minor modification. Please sign below to acknowledge that you will comply with the minor modifications specified in this letter and send a copy of the signed letter to Kristy Long on my staff at your earliest convenience.

We note that NCDMF has requested several modifications since the permit began and understand that you are in the process of developing an updated Incidental Take Permit application. We encourage you to incorporate any further anticipated minor modifications into that application process so we can more efficiently analyze these requests.

Please feel free to contact Ron Dean (ron.dean@noaa.gov) or Kristy Long (kristy.long@noaa.gov) with any questions about this minor modification request approval or your pending updated application.

We look forward to continuing to work with you on sea turtle conservation in North Carolina.

Sincerely,

Donna S. Wieting

Donna S. Wieting
Director, Office of Protected Resources

Printed on Recycled Paper

I acknowledge the minor modification specified above to Permit No. 16230 issued under Section 10 (a)(l)(B) of the Endangered Species Act to incidentally take threatened and endangered sea turtles in gillnet fisheries operating in inshore waters of North Carolina.

Braxton C. Davis
Director
N.C. Division of Marine Fisheries

1-5-17
Date

APPENDIX B

September 2, 2016

David,

The North Carolina Watermen United (NCWU) would like to thank you setting up the meeting with gill- and pound- netters. We appreciate your efforts to help re-open closed areas and keep others from being closed.

However, as many of the attendees at the meeting in Wanchese on Tuesday, August 30, 2016 mentioned, every possible action has been in effect for years to reduce interactions with endangered sea turtles under the regulations of the Sea Turtle ITPs since 2002. We already have many gear modifications, closures in high turtle interaction areas, a reduction in fishing times and a reduction in fishing efforts that include -

- 1. The state is divided into 6 Unit Areas and 4 of those 6 units have 4 days a week fishing only; night-time soaks only; 15-mesh deep nets and no floats. These are year-round restrictions in the 4 areas.

- 2. The southern portion of Unit A is also under these same restrictions. The entire deep-water area of Pamlico Sound is closed to the use of large mesh gillnet from September 1 until January of the next year.

- 3. All inlet corridors are closed to large mesh gillnets after September 1 each year.

- 4. Unit E is closed to the use of large mesh gillnets every May until October.

- 5. In all internal waters, the only areas that do not have gear modifications and further restrictions under the ITP are the northern parts of Unit A and Unit C – both of which have minimal interactions with sea turtles, and still only 4 interactions per unit per year are authorized.

At this time, NCWU would like to ask again that a meeting be set up with NCWU and NCFA fishermen, especially gill- and pound- netters, with representatives from the NC Division of

Marine Fisheries and with Jean Beasley from the Karen Beasley Sea Turtle Foundation. Jean Beasley and NCWU asked the previous DMF Director for this meeting many times, but he never acted on our request. It is the perfect time to listen to her ideas and experiment with the devices that she has been advocating for years that she believes would help lessen the number of turtle interactions. I am a gillnetter and very willing to help test and monitor these devices.

We are hopeful that the cooperation between NCWU, NCFA and the NCDMF with Jean Beasley may help us all to solve some of the problems that our state's gillnet fishermen are experiencing.

Thank you.

Yours truly,

Andrew Berry

Andrew Berry
NCWU Board Member
252-722-4293
bowhunterab14@gmail.com

AB: mm
cc: NCDMF Director Braxton Davis, Chris Batsavage; Jacob Berg
NCDEQ Secretary van der Vaart
NCFA Director Jerry Schill, Chairman Brent Fulcher

APPENDIX C

Chris,

I am following up on the Protected Species Workgroup meetings. As was discussed at both meetings, there have been more than substantial measures directly, and indirectly, reducing mitigation of turtle interactions, but those measures need quantified.

I am requesting per the direction of the fishermen, that NCDFM quantify the total sea turtle mitigation reduction that has taken place from prior to the sea turtle lawsuit to present. It should also include impacts by other regulations such as fishery effort/harvest reductions. For the information to be useful, it may be necessary to separate reductions based on ITP closures from other reductions, so that we can determine how effective all of the other measures have been without closures. You may even include one total with, and one without closures.

It is also requested that a biological opinion be completed relating to those measures, once quantified, addressing the successful mitigation of sea turtles. It should include any potential measures that might be necessary, and only if necessary, to reduce interactions sufficiently, without relying on a set number to base closures on. This opinion should address both large and small mesh fisheries that have substantial interaction with turtles.

These items are being requested to work towards an ITP that sufficiently protects the species, while preventing unnecessary closures to the fishery.

I was just directed to make this request and wanted to get it to you as soon as possible. If in my haste I was unclear and need to clarify anything, please contact me anytime.

Take care,

David Bush
Fisheries Biologist,
NC Fisheries Association
(910)777-1605

APPENDIX D

NORTH CAROLINA MARINE FISHERIES COMMISSION
DEPARTMENT OF ENVIRONMENTAL QUALITY

Aug. 25, 2016

Mr. Bob Lorenz
P.O. Box 10512
Wilmington, NC 28404

Dear Bob:

I wanted to let you know at last week's Marine Fisheries Commission meeting I announced the Sea Turtle Advisory Committee was being disbanded. I wanted to contact you directly and let you know I had taken this action and the reason why.

The commission has a multitude of committees, many of which are statutorily mandated, such as the Northern and Southern regional advisory committees and the Finfish, Shellfish/Crustacean and Habitat and Water Quality advisory committees. These committees require a great deal of attention, both in staff time and in resources. In looking for efficiencies in our committee system, I felt our regional and pertinent standing advisory committees could serve as venues to review and provide the needed input on sea turtle issues. So, after much consideration, I decided to disband the Sea Turtle Advisory Committee, because it is not statutorily required. This was a difficult decision, especially since I served on the Sea Turtle Advisory Committee prior to being appointed to the Marine Fisheries Commission.

Later this fall we will be doing our annual solicitation for advisers. If any of you are interested in serving on other committees, please let me know and I will make every effort to place you on one of these committees as openings become available.

In closing, please know how much I appreciate your dedication and service to the state. I encourage you to please stay involved in fisheries issues and I hope to see you or hear from you in the future.

Sincerely,

Sammy Corbett, Chairman
N.C. Marine Fisheries Commission

cc: Chris Batsavage, Division of Marine Fisheries

APPENDIX E

Marine Fisheries
ENVIRONMENTAL QUALITY

PAT McCRORY
Governor
DONALD R. VAN DER VAART
Secretary
BRAXTON C. DAVIS
Director

Kristy Long
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Kristy:

North Carolina Division of Marine Fisheries (NCDMF) Observer Program data have been updated using the finalized 2015 Trip Ticket Program (TTP) data. The Annual Completion Report for the Sea Turtle Incidental Take Permit (ITP) No. 16230 was completed for ITP Year 2015 and submitted in January 2016. Using the finalized 2015 data, Tables 1, 5, 10, and 11 from the Completion Report were updated to reflect the final estimates of observer coverage and sea turtle takes (Tables 1-4). The fall 2014 season was based on finalized 2014 TTP data and did not deviate from the previous report for both large and small mesh gill nets (Tables 1 and 2).

The spring 2015 season had an increase in fishing trips for large mesh gill nets than previously estimated in all management units except management units B and D1 (Table 1). Observer coverage goals for large mesh gill nets were met in all management units except management units A and D1 for the spring 2015 season. Little fishing effort occurred (n = 5 fishing trips) in management unit D1 for the spring 2015 season making it difficult to obtain observer trips. Management unit A had 6.7% observer coverage for large mesh gill nets in the spring 2015 season. The summer 2015 season had an increase in fishing trips for large mesh gill nets than previously estimated in management units C and E. Observer coverage goals for large mesh gill nets were met in all management units that were open for the summer 2015 season (management unit D1 is closed annually from May 8 through October 14 as described in the ITP; Table 1).

The spring 2015 season had an increase in fishing trips for small mesh gill nets than previously estimated in management unit D2 (Table 2). Observer coverage goals for small mesh gill nets were met in all management units for the spring 2015 season. The summer 2015 season had an increase in fishing trips for small mesh gill nets than previously estimated in management units C and D2. Observer coverage goals for small mesh gill nets were met in all management units except management unit D1 where no observed trips occurred. Little fishing effort occurred (n = 6 fishing trips) in management unit D1 for the summer 2015 season making it difficult to obtain observer trips. Management unit D2 had 0.9% observer coverage for small mesh gill nets in the summer 2015 season (Table 2).

Annual estimated allowable sea turtle takes were recalculated using the finalized 2015 TTP data (Tables 3 and 4). The estimates of sea turtle takes decreased or remained constant

from previous estimates for all species and dispositions except for alive green sea turtles in management unit E which increased by an estimated four takes. The large mesh gill-net fishery remained below the annual estimated allowable sea turtle takes for all species and dispositions for ITP Year 2015 (Tables 3 and 4).

Table 1. Observer coverage calculated from finalized 2015 Trip Ticket data and observer data for large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2015 (September 1, 2014 - August 31, 2015).

		Large Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2014	A	2,529	192	7.6
	B	1,448	154	10.6
	C	904	152	16.8
	D1	23	23	100.0
	D2	264	58	22.0
	E	282	58	20.6
Spring 2015	A	2,369	158	6.7
	B	383	44	11.5
	C	1,033	72	7.0
	D1	5	0	0.0
	D2	92	7	7.6
	E	389	61	15.7
Summer 2015	A	115	12	10.4
	B	109	16	14.7
	C	328	40	12.2
	D1	0	0	0.0
	D2	124	17	13.7
	E	661	98	14.8
Total		11,058	1,162	10.5

Table 2. Observer coverage calculated from finalized 2015 Trip Ticket data and observer data for small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2015 (September 1, 2014 - August 31, 2015).

		Small Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2014	A	566	18	3.2
	B	1,381	22	1.6
	C	309	15	4.9
	D1	80	7	8.8
	D2	325	9	2.8
	E	624	24	3.8
Spring 2015	A	1,062	52	4.9
	B	1,210	23	1.9
	C	238	12	5.0
	D1	21	5	23.8
	D2	44	2	4.5
	E	185	14	7.6
Summer 2015	A	172	3	1.7
	B	899	12	1.3
	C	181	6	3.3
	D1	6	0	0.0
	D2	110	1	0.9
	E	275	11	4.0
Total		7,688	236	3.1

Table 3. Final authorized and actual annual estimated sea turtle takes in large mesh (≥4 inch stretched mesh) gill nets for ITP Year 2015 (September 1, 2014 - August 31, 2015).

	Management Unit											
	B				D1				Total			
	Estimated Takes				Estimated Takes							
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	225	112	150	72	9	5	2	0	234	117	152	72
Kemp's ridley	53	26	18	7	15	7	0	0	68	33	18	7
Total	278	138	168	79	24	12	2	0	302	150	170	79

	Management Unit											
	D2				E				Total			
	Estimated Takes				Estimated Takes							
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	n/a [1]	n/a [1]	n/a [1]	n/a [1]	96	48	13	0	96	48	13	0
Kemp's ridley	6	3	0	0	24	13	8	0	30	16	8	0
Total	6	3	0	0	120	61	21	0	126	64	21	0

[1] Insufficient observer data exist to model an estimated annual take level; therefore, for management unit D2, an annual observed take number has been identified for green turtles, and is found in Table 2 of the Annual Completion Report for the Sea Turtle ITP No. 16230 for ITP Year 2015.

Table 4. Final total annual authorized and actual takes (estimated and observed) by species and condition for ITP Year 2015 (September 1, 2014 - August 31, 2015).

	Observed (live/dead)		Estimated			
			Authorized		Actual	
Species	Authorized	Actual	Alive	Dead	Alive	Dead
Green	18	9	330	165	165	72
Hawksbill	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Kemp's ridley	12	1	98	49	26	7
Leatherback	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Loggerhead	24	4	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Any Species [2]	8	2	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Total	78	16	428	214	191	79

[1] Insufficient observer data exist to model an estimated annual take level; therefore, takes are expressed as observed

[2] This category was listed in Table 5 of the Sea Turtle ITP No. 16230 to incorporate allowed takes from management units A and C. However, there were two unidentified (unknown) sea turtle interactions during ITP Year 2015 which are now included in this category. All other observed interactions in management units A and C where a positive species identification was obtained are included in the specific species categories.

Sincerely,

Jacob Boyd, Protected Species Biologist
Division of Marine Fisheries, NCDEQ

cc: Chris Batsavage
Braxton Davis
Dee Lupton
John McConnaughey

Nothing Compares
State of North Carolina | Environmental Quality | Marine Fisheries
PO Box 769 | 3441 Arendell Street | Morehead City, NC 28557
252 726 7021 T

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

May 17, 2017

MEMORANDUM **Landings 05-17**

TO: Marine Fisheries Commission

FROM: License and Statistics Section

SUBJECT: Landings Update

Attached are the current landings for red drum and southern flounder.

Red drum landings are presented by month for the Sept. 1, 2015 through Aug. 31, 2016 fishing season and the Sept. 1, 2016 through Aug. 31, 2017 fishing season. Monthly landings of southern flounder are presented for 2013-2017. Southern flounder landings by gear for the last five years are also provided.

The 2016 landings have been finalized. 2017 data are preliminary and only complete through January. Confidential data were denoted with ***.

Year	Month	Species	Pounds	Dealers	Trips	Average (2007-2009)
2013	1	SOUTHERN FLOUNDER	2,942	42	276	7,713
2013	2	SOUTHERN FLOUNDER	896	37	254	4,617
2013	3	SOUTHERN FLOUNDER	4,387	57	682	23,512
2013	4	SOUTHERN FLOUNDER	16,696	92	1,176	68,389
2013	5	SOUTHERN FLOUNDER	49,629	123	1,778	122,514
2013	6	SOUTHERN FLOUNDER	79,203	137	2,127	154,090
2013	7	SOUTHERN FLOUNDER	119,726	150	2,840	170,387
2013	8	SOUTHERN FLOUNDER	124,184	147	2,686	201,862
2013	9	SOUTHERN FLOUNDER	416,203	161	3,632	396,301
2013	10	SOUTHERN FLOUNDER	883,476	172	5,512	781,717
2013	11	SOUTHERN FLOUNDER	483,762	121	2,589	392,150
2013	12	SOUTHERN FLOUNDER	5,288	12	27	37,303
2014	1	SOUTHERN FLOUNDER	2,978	29	183	7,713
2014	2	SOUTHERN FLOUNDER	1,823	29	285	4,617
2014	3	SOUTHERN FLOUNDER	3,430	43	677	23,512
2014	4	SOUTHERN FLOUNDER	18,997	71	933	68,389
2014	5	SOUTHERN FLOUNDER	16,001	93	681	122,514
2014	6	SOUTHERN FLOUNDER	80,142	123	1,988	154,090
2014	7	SOUTHERN FLOUNDER	84,702	141	2,148	170,387
2014	8	SOUTHERN FLOUNDER	105,208	137	2,204	201,862
2014	9	SOUTHERN FLOUNDER	404,143	153	3,588	396,301
2014	10	SOUTHERN FLOUNDER	634,514	146	3,436	781,717
2014	11	SOUTHERN FLOUNDER	320,773	121	1,991	392,150
2014	12	SOUTHERN FLOUNDER	800	5	7	37,303
2015	1	SOUTHERN FLOUNDER	1,984	30	237	7,713
2015	2	SOUTHERN FLOUNDER	495	21	93	4,617
2015	3	SOUTHERN FLOUNDER	10,750	62	768	23,512
2015	4	SOUTHERN FLOUNDER	20,824	88	1,074	68,389
2015	5	SOUTHERN FLOUNDER	42,454	117	1,282	122,514
2015	6	SOUTHERN FLOUNDER	53,838	116	1,482	154,090
2015	7	SOUTHERN FLOUNDER	42,806	106	1,144	170,387
2015	8	SOUTHERN FLOUNDER	43,900	111	1,152	201,862
2015	9	SOUTHERN FLOUNDER	255,067	122	2,335	396,301
2015	10	SOUTHERN FLOUNDER	429,234	127	2,554	781,717
2015	11	SOUTHERN FLOUNDER	301,489	90	1,755	392,150
2015	12	SOUTHERN FLOUNDER	89	7	10	37,303
2016	1	SOUTHERN FLOUNDER	2,625	33	264	7,713
2016	2	SOUTHERN FLOUNDER	1,643	31	291	4,617
2016	3	SOUTHERN FLOUNDER	9,183	58	914	23,512
2016	4	SOUTHERN FLOUNDER	10,558	72	628	68,389
2016	5	SOUTHERN FLOUNDER	24,522	90	821	122,514
2016	6	SOUTHERN FLOUNDER	44,952	100	1,242	154,090
2016	7	SOUTHERN FLOUNDER	43,574	102	1,132	170,387
2016	8	SOUTHERN FLOUNDER	53,057	106	1,409	201,862
2016	9	SOUTHERN FLOUNDER	245,870	131	3,004	396,301
2016	10	SOUTHERN FLOUNDER	279,618	117	2,161	781,717
2016	11	SOUTHERN FLOUNDER	180,458	102	1,442	392,150
2016	12	SOUTHERN FLOUNDER	14	5	5	37,303
2017	1	SOUTHERN FLOUNDER	1,677	38	122	7,713
2017	2	SOUTHERN FLOUNDER	2,718	55	212	4,617
2017	3	SOUTHERN FLOUNDER	5,130	40	618	23,512
2017	4	SOUTHERN FLOUNDER	543	6	35	68,389

2017 data are preliminary and only complete through February.
***data are confidential

Year	Species	Gear	Pounds	Dealers	Trips
2012	SOUTHERN FLOUNDER	GIGS	149,387	112	3,000
2012	SOUTHERN FLOUNDER	GILLNETS	879,373	168	14,713
2012	SOUTHERN FLOUNDER	OTHER	47,989	105	1,462
2012	SOUTHERN FLOUNDER	POUND NET	569,388	35	1,754
2013	SOUTHERN FLOUNDER	GIGS	118,489	101	2,408
2013	SOUTHERN FLOUNDER	GILLNETS	1,096,060	178	16,968
2013	SOUTHERN FLOUNDER	OTHER	46,953	104	2,093
2013	SOUTHERN FLOUNDER	POUND NET	924,889	41	2,112
2014	SOUTHERN FLOUNDER	GIGS	135,273	109	2,655
2014	SOUTHERN FLOUNDER	GILLNETS	659,394	145	11,778
2014	SOUTHERN FLOUNDER	OTHER	18,628	115	1,887
2014	SOUTHERN FLOUNDER	POUND NET	860,216	39	1,806
2015	SOUTHERN FLOUNDER	GIGS	130,277	92	2,616
2015	SOUTHERN FLOUNDER	GILLNETS	392,384	133	8,471
2015	SOUTHERN FLOUNDER	OTHER	12,422	102	1,002
2015	SOUTHERN FLOUNDER	POUND NET	667,847	40	1,803
2016	SOUTHERN FLOUNDER	GIGS	126,983	92	2,657
2016	SOUTHERN FLOUNDER	GILLNETS	359,880	126	8,399
2016	SOUTHERN FLOUNDER	OTHER	10,953	84	838
2016	SOUTHERN FLOUNDER	POUND NET	398,258	39	1,423

Red Drum Landings 2015-2017

Landings are complete through February 28, 2017
2015 and 2016 landings are final. 2017 landings are preliminary.

Year	Month	Species	Pounds	2009-2011 Average	2013-2015 Average
2015	9	Red Drum	4,961	28,991	35,003
2015	10	Red Drum	18,815	43,644	63,662
2015	11	Red Drum	4,897	14,318	27,643
2015	12	Red Drum	1,398	3,428	2,197
2016	1	Red Drum	1,183	5,885	1,699
2016	2	Red Drum	1,679	3,448	3,996
2016	3	Red Drum	2,170	5,699	3,971
2016	4	Red Drum	3,698	7,848	6,528
2016	5	Red Drum	6,200	13,730	9,664
2016	6	Red Drum	6,013	12,681	6,985
2016	7	Red Drum	6,328	13,777	15,618
2016	8	Red Drum	6,793	21,252	15,846
Fishing Year (Sept 1, 2015 - Aug 31, 2016) Landings			**64,135**		

Year	Month	Species	Pounds	2009-2011 Average	2013-2015 Average
2016	9	Red Drum	18,748	28,991	35,003
2016	10	Red Drum	13,907	43,644	63,662
2016	11	Red Drum	8,268	14,318	27,643
2016	12	Red Drum	1,990	3,428	2,197
2017	1	Red Drum	1,313	5,885	1,699
2017	2	Red Drum	2,781	3,448	3,996
2017	3	Red Drum	3,788*	5,699	3,971
2017	4	Red Drum	65*	7,848	6,528
Fishing Year (Sept 1, 2016 - Aug 31, 2017) Landings			**50,859**		

*partial trip ticket landings only
***landings are confidential

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

April 26, 2017

MEMORANDUM **MAFC 05-17**

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Protected Resources Section Chief/Special Assistant for Councils

SUBJECT: Mid-Atlantic Fishery Management Council Meeting Summary - Feb. 14-16, 2017

The Mid-Atlantic Fishery Management Council met on Feb. 14-16 in Kitty Hawk, NC. The council met jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board to discuss several topics related to management of black sea bass and summer flounder. Management actions taken by the council are discussed below. Additional meeting information can be found in the briefing material.

Black Sea Bass Specifications
The council and board approved revised black sea bass specifications for 2017 and approved specifications for 2018 that are based on the latest benchmark stock assessment completed in late 2016, which determined that the stock is not overfished and overfishing is not occurring. The 2017 commercial and recreational quotas are 4.12 million pounds and 4.29 million pounds, respectively. The 2018 commercial and recreational quotas are 3.52 million pounds and 3.66 million pounds, respectively.

Black Sea Bass Recreational Measures for 2017
The council and board recommended status quo management measures for black sea bass in federal waters and in state waters from Delaware to North Carolina, north of Cape Hatteras. Those measures are a 12.5-inch minimum size limit, 15-fish bag limit and open seasons from May 15 through Sept. 21 and from Oct. 22 through Dec. 31. State waters from Massachusetts to New Jersey can either adopt status quo management measures or implement new measures that constrain harvest to the 2017 recreational quota. Preliminary 2016 black sea bass recreational harvest estimates are above the 2017 quota. The board will consider final 2016 harvest estimates when developing state waters management measures for Massachusetts to New Jersey. Management options will be limited if the final 2016 estimate exceed the 2017 quota.

Summer Flounder Amendment
The council and board decided not to move forward with a framework to address recreational management measures in the summer flounder fishery now. Council staff will continue to work with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup and Black Sea Bass Technical Committee to address recreational summer flounder issues. The council and board could consider a framework action after the analyses are complete.

Upcoming Meeting
The next regularly scheduled meeting of the Mid-Atlantic Fishery Management Council will be April. 11-13, 2017 at the Icona Golden Inn in Avalon, NJ.

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

April 26, 2017

MEMORANDUM **MAFC 05-17**

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Protected Resources Section Chief/Special Assistant for Councils

SUBJECT: Mid-Atlantic Fishery Management Council Meeting Summary— April 11-13, 2017

The Mid-Atlantic Fishery Management Council met on April 11-13 in Avalon, NJ. Management actions taken by the council are discussed below.

River Herring and Shad Committee
The council's River Herring and Shad Committee met to develop measurable criteria for making management decisions for these species (alewife, blueback herring, American shad, and hickory shad) in federal waters. This work is being conducted in lieu of managing river herring and shad as stocks in the fishery. The committee provided feedback on criteria to include based on their importance and availability of information and will continue to work with council staff on developing criteria.

Chub Mackerel Scoping Document
The council reviewed and approved a scoping document for chub mackerel management for public comment. The council voted to manage chub mackerel as a stock in the fishery when they took final action on the Unmanaged Forage Amendment last August due to the directed fishery for chub mackerel over the last several years. The directed fishery is from boats in the *Illex* squid fishery that shifted their efforts to catching chub mackerel when *Illex* squid availability is low. Offshore anglers targeting billfish and tunas are concerned about the directed commercial fishery because billfish and tunas feed on chub mackerel, especially around the offshore canyons. Public scoping hearings will be held in May.

Hudson Canyon Sanctuary Proposal
The council received a presentation from staff from the Wildlife Conservation Society's New York Aquarium on their proposal to designate Hudson Canyon as a National Marine Sanctuary. The council supported many of the proposal's conservation objectives but had concerns regarding the uncertainty regarding whether the council would retain management authority for fishery resources in the designated area, whether that authority could be overruled for certain

actions, and what role or level of participation the council would have in sanctuary management activities. Based on these concerns, the council voted to send a letter to the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries stating that the council cannot support the nomination and recommends that it not be advanced to the designation stage.

Upcoming Meeting

The council will meet jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board on May 10, 2017 in Alexandria, VA. The next regularly scheduled meeting of the Mid-Atlantic Fishery Management Council will be June 6-8, 2017 at The Main Hotel in Norfolk, VA.

February 2017 Council Meeting Report

February 14 – 16, 2017
Kitty Hawk, North Carolina

The following summary highlights actions taken and issues considered at the Mid-Atlantic Fishery Management Council's February 2017 meeting in Kitty Hawk, NC. Presentations, briefing materials, and webinar recordings are available on the Council's website at www.mafmc.org/briefing/february-2017.

Black Sea Bass Management

2017-2019 Black Sea Bass Specifications

The Council and the Atlantic States Marine Fisheries Commission (Commission) approved revised specifications for the 2017 black sea bass fishing year as well as specifications for the 2018 fishing year. The revised specifications are based on the results of the 2016 benchmark stock assessment, which found the stock is not overfished and overfishing is not occurring. The table below summarizes commercial quotas and recreational harvest limits (RHL) for black sea bass in 2016, 2017 and 2018. Please note that specifications for 2018 may be adjusted based on changes in the fishery or new scientific information.

Year	Commercial Quota (millions of pounds)	Commercial Minimum Fish Size (TL)	Commercial Mesh Size	Recreational Harvest Limit (millions of pounds)
2016	2.70	11"	4.5"	2.82
2017	4.12	11"	4.5"	4.29
2018	3.52	11"	4.5"	3.66

The approved limits are consistent with the recommendations of the Council's Science and Statistical Committee. The Council will forward its recommendations for federal waters (3 – 200 miles from shore) to NOAA Fisheries Greater Atlantic Regional Fisheries Administrator for final approval. The Commission's actions are final and apply to state waters (0-3 miles from shore).

Black Sea Bass Recreational Specifications

The Council and Commission maintained status quo recreational measures in federal waters and in state waters from Delaware through North Carolina for 2017. These include a 12.5-inch TL minimum size, 15 fish possession limit, and open seasons from May 15 - September 21 and October 22 - December 31 (note: measures for federal waters are not final until approved by NOAA). Northern region states (Massachusetts through New Jersey) have the flexibility to continue 2016 management measures or develop new measures that will collectively constrain harvest to the 2017 RHL. Recognizing the favorable stock condition and the difficultly of precisely projecting the impacts of recreational management measures on overall harvest, the Commission and Council maintained status quo measures for 2017. Preliminary 2016 recreational harvest is estimated at 4.67 million pounds, roughly 380,000 pounds above the 2017 RHL. As additional 2016 harvest estimates become available, the Commission may review these data and consider the potential impacts to achieving the 2017 RHL.

Black Sea Bass Commercial Accountability Measures Framework

The Council met for the first framework meeting to consider modifying the black sea bass commercial accountability measures (AMs). The framework was initiated in December 2016 to consider adding flexibility in the commercial accountability measures for black sea bass based on stock status, similar to the AMs in place

for the Council's recreational species. The framework presents alternatives to the existing AMs with a focus on evaluating and accounting for commercial discards with options for both 1) evaluation of ACL overages and 2) responses to non-landing overages to account for the latest information and current stock status.

The Council considered a suggestion to add an alternative which would also evaluate commercial landing overage AMs based on stock status. After discussion, the Council decided to move forward with the original range of measures proposed by staff. The Council also considered adding summer flounder and scup to the framework but decided to hold off adding these species until later to determine if black sea bass AMs will be implemented in 2017. Depending upon the timing of that determination, staff will continue to move forward with black sea bass only framework or incorporate the additional species and bring the framework back for Council consideration at a future 2017 meeting.

Summer Flounder Amendment

As requested at the December 2016 joint meeting, the Council and Board received preliminary guidance on which recreational issues under the Comprehensive Summer Flounder Amendment could potentially be addressed through a framework action. The Council and Board then revisited a tabled motion from the December meeting, and decided not to initiate a recreational framework action at this time. However, staff will continue to work with the ASMFC technical committee to address summer flounder recreational issues. As analyses are completed, those results will be made available for possible consideration by the Council in framework action.

Mackerel, Squid, and Butterfish

The Council approved a hearing document for public hearings on the Squid Amendment. This a could reduce the number of moratorium permits in both the longfin and Illex squid fisheries and create a new limited access incidental longfin squid permit. As part of this action, the Council is also re-evaluating the Trimester II quota rollover and closure provisions. Public hearings are anticipated in April 2017.

River Herring and Shad

The River Herring and Shad (RH/S) Committee met to discuss criteria to assess programs in river herring and shad conservation. The Council tasked the Committee, working with Council and NMFS staff, to develop measurable criteria by which the Council will be better able to decide on management actions related to RH/S. Council staff will work with NMFS staff to develop draft criteria, which will be brought back to the RH/S Committee for further development.

Other Topics

National Marine Sanctuary Nomination Process

Paul Ticco gave a presentation on a new bottom-up approach for nominating potential National Marine Sanctuary sites. The Council also had an opportunity to ask questions and provide feedback on how fishing activities are managed in sanctuaries.

Black Sea Bass Research Update

The Council received a presentation from Brad Stevens on black sea bass research being conducted at the University of Maryland Eastern Shore. He provided an overview of several projects which address a range of topics, including black sea bass abundance, behavior, traps, habitat, and diet.

Next Meeting

Tuesday, April 11, 2017 – Thursday, April 13, 2017
Icona Golden Inn, 7849 Dune Dr., Avalon, NJ 08202
Telephone: 609-368-5155

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

April 20, 2017

MEMORANDUM **SAFMC 05-17**

TO: Marine Fisheries Commission

FROM: Michelle Duval

SUBJECT: South Atlantic Fishery Management Council Meeting Summary (March 6-10, 2017)

The South Atlantic Fishery Management Council met March 6-10 in Jekyll Island, Georgia. The attached meeting report compiled by council staff contains a summary of the major issues addressed and actions taken. The report includes links to the post-meeting news release, briefing materials and public comments, as well as a graphical and informative summary of the meeting via the March 2017 Council Meeting Round-up Story Map (http://arcg.is/2mTfmKD). It was an extremely full agenda with items that may be of particular interest to the commission highlighted below:

- Exempted Fishing Permit (South Atlantic Commercial Fishing Collaborative): The South Atlantic Commercial Fishing Collaborative submitted an application for an Exempted Fishing Permit to NOAA Fisheries entitled "Year Round Allocation Pilot Program." The permit would have allowed for up to 25 federally-permitted commercial vessels to voluntarily participate in an individual fishing quota program for six snapper grouper species (vermilion snapper, greater amberjack, blueline tilefish, gag grouper, gray triggerfish, jacks complex). For each species, the proportion of the annual catch limit allocated to the collaborative for 2018 and 2019 would have been based on the pooled catch history of participating vessels over a six-year timeframe (relative to the total harvest by all permitted vessels). The collaborative would have redistributed these species allocations to individual vessels. While the council received a significant amount of public comment in advance of the meeting via its online comment form, the collaborative withdrew the permit application prior to the public comment session held during the meeting. Therefore, the council did not deliberate on this exempted fishing permit application during the full council session as previously scheduled. For any Exempted Fishing Permit, the council may provide a recommendation to NOAA Fisheries regarding whether the permit should be issued; however, the ultimate decision to do so rests with the NOAA Fisheries Regional Administrator.

- For-Hire Limited Entry: The council reviewed a white paper developed by staff regarding limited entry in the for-hire component of the snapper grouper fishery. The paper outlined possible issues that a limited entry program could address, different approaches and design features to consider and the associated pros/cons, and a summary of public comment to date. Due to time constraints, the council will continue its deliberations on the topic in June.

- Cobia: The council received an update from NOAA Fisheries on final 2016 recreational cobia harvest and how the agency determined the federal waters recreational closure date for 2017. The proposed rule for Coastal Migratory Pelagics Framework Amendment 4 was published on Feb. 21, 2017 with a comment deadline of March 23, 2017. The final rule is anticipated to be published in early May. The rule would establish a 36-inch (fork length) minimum recreational size limit, a one-fish per person/six-fish per vessel recreational possession limit, and a two-fish per person/six-fish per vessel commercial possession limit in federal waters (no change to commercial minimum size limit of 33-inches fork length).

- Red Snapper: The council received a notification from NOAA Fisheries that the harvest prohibitions in 2015 and 2016 were sufficient to address the overfishing determination from the recent stock assessment (completed in 2016, with a terminal year of 2014). However, the significant uncertainty in the magnitude of overfishing in the terminal year of the assessment inhibits the council's ability to set an allowable biological catch, and upcoming recalibrations of recreational harvest estimates are also a complicating factor. Additionally, discards of red snapper remain an obstacle to rebuilding the stock. The council has requested that NOAA Fisheries and its Scientific and Statistical Committee work together to determine an alternative method for setting an allowable biological catch.

- Commercial and Recreational Vision Blueprint Amendments: The council reviewed comments received during January scoping meetings regarding potential actions in both Vision Blueprint Regulatory Amendment 26 (recreational) and Vision Blueprint Regulatory Amendment 27 (commercial). The recreational amendment considers modifications to the existing aggregate recreational bag limits, commercial split seasons for a number species (greater amberjack, deepwater species, red porgy), and the shallow water grouper closure. The council will review and approve for August public hearings during its June meeting.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Dr. Michelle Duval, Chair | Charlie Phillips, Vice Chair
Gregg T. Waugh, Executive Director

MARCH 6-10, 2017 COUNCIL MEETING REPORT
JEKYLL ISLAND, GEORGIA

The following summary highlights the major issues discussed and actions taken at the South Atlantic Fishery Management Council's March 2017 meeting in Jekyll Island, Georgia.

Briefing materials, presentations, and public comments are available on the Council's website at: http://safmc.net/briefing-books/03-2017-council-meeting/. Final Committee Reports contain more details of what was accomplished for each committee and the motions made; Committee Reports are located on the March briefing book page (see link above). In addition, the Summary of Motions on the Council's website includes all motions from the meeting. Read further details and see images and other links at the March 2017 Council Meeting Round-up Story Map: http://arcg.is/2mTfmKD. The Meeting News Release is available at: http://safmc.net/news-releases/3102017-safmc-news-release-march-2017-council-meeting.

Issue:	Action Taken:	Schedule:
Experimental Fishing Permits (EFPs): 1. Lionfish 2. Pelagic Longline 3. SA Collaborative	The Council will develop procedures to consider future EFPs and specify at which point during the process the request should be sent to the Council. 1. Recommended to the Regional Administrator that the Lionfish EFP be permitted. 2. Send letter to HMS Division Chief noting concerns regarding interaction with the royal red shrimp & golden tilefish fisheries; cap on dolphin harvest; user conflicts & discards; concern that only one company is involved; and ensuring that the minimally necessary sets and time needed to be scientifically valid. Include the fact that a vote was taken and the Council was evenly divided on approval/disapproval. 3. The applicant withdrew the request.	1. Letter will be sent within 2 weeks. 2. Letter will be sent within 2 weeks. 3. The application will be resubmitted at some future date once it is revised and the documentation is complete.
For-Hire Limited Entry	The Council discussed the White Paper but took no action.	Discuss at the June 2017 meeting.

Issue:	Action Taken:	Schedule:
Gulf For-Hire Reporting	The Council approved the Gulf Council's amendment that would establish/modify electronic reporting for headboats & charter vessels: reports must be submitted prior to offloading fish; require a hail out with return time & location; and require vessel operators to submit fishing records via NMFS approved hardware/software with GPS capabilities that, at a minimum, archive vessel position data to NMFS. The GPS portion of the hardware is permanently affixed to the vessel. The Council approved requesting that the Gulf Council consider an exemption to the Gulf for-hire trip level reporting requirements for vessels with Gulf and South Atlantic permits when taking a trip solely in South Atlantic waters, and to allow vessels taking such trips to report according to the South Atlantic requirements.	Letter will be sent to the Gulf Council about approval and the request for an exemption within 2 weeks.
Red Snapper	Amendment 43: Provided guidance to staff to continue work on Amendment 43 but focus on best fishing practices items pending resolution on obtaining an ABC for red snapper. Removed the large area closures from the amendment.	Review & approve best fishing practices items for public hearings at June 2017 meeting. Continue working on remaining items as identified.
Spiny Lobster	Regulatory Amendment 4: Provided guidance to staff. • ACL = ABC as recommended by the Gulf and South Atlantic SSCs using the mean landings from the years 1991/92-2015/16 plus 1.5 standard deviations (9.6 million pounds). The ACT is 90% of the new ACL (8.64 million pounds). • Prohibit the use of traps for recreational harvest of spiny lobster in the South Atlantic EEZ.	Schedule a Webinar Public Hearing. Final review & approval at the June 2017 meeting.
Recreational Visioning Amendment	Regulatory Amendment 26: Provided guidance to staff.	Review & approve for public hearings at the June 2017 meeting.
Commercial Visioning Amendments	Regulatory Amendment 27: Provided guidance to staff.	Review & approve for public hearings at the June 2017 meeting.
Yellowtail Snapper	Amendment 44: Suspend work until the revised MRIP data are available.	Resume work in late 2018 or early 2019.

Issue:	Action Taken:	Schedule:
Golden Tilefish	Amendment 45: Requested the SSC consider establishing an interim ABC at 75% F_{MSY}. The Council requested a SEDAR standard assessment of tilefish for late 2017, to be provided to the SSC for consideration in April 2018, with a 2016 terminal year.	The Council will review the ABC recommendation at the June meeting. Continue work on golden tilefish after the June 2017 meeting once Spiny Lobster if completed.
Mackerel/Cobia	The Council received updates from the ASMFC and States on cobia management progress. The Council postponed Amendment 29 indefinitely to concur with the Gulf Council.	Gather input from the Advisory Panel in April and bring back to the Council in June 2017.
Dolphin	Amendment 10: Suspend work until the revised MRIP data are available.	Resume work in late 2018 or early 2019.
Citizen Science	Provided guidance on Year 1 Plan of Work and the Proposed Transition Team	Continue to implement the Council's Citizen Science Program

For details on any item, please refer to the Final Committee reports available on the Council's website at: http://safmc.net/briefing-books/03-2017-council-meeting/.

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

April 21, 2017

MEMORANDUM **HMS 05-16**

TO: Marine Fisheries Commission

FROM: Randy Gregory, Division of Marine Fisheries, NCDEQ

SUBJECT: Highly Migratory Species Update

The Highly Migratory Species Advisory Panel will meet on May 9-11, 2017 in Silver Spring, Maryland to discuss the proposed management measures contained in Amendment 5b on dusky sharks; Draft Amendment 10 on Essential Fish Habitat; implementation of Final Amendment 7 on bluefin tuna management, including the upcoming three-year review; and progress updates on various other rulemakings, including individual bluefin quota transfer criteria effective dates, requests for regulatory changes received to date; domestic implementation of recommendations from the 2016 meeting of the International Commission for the Conservation of Atlantic Tunas and issues for 2017; progress updates regarding the exempted fishing permit request to conduct research in pelagic longline closed areas and white shark research; and updates on shark stock assessments.

Sharks

On April 4, the National Marine Fisheries Service announced final rule Amendment 5b to the 2006 Consolidated Highly Migratory Species Fishery Management Plan based on the results of the 2016 stock assessment update for Atlantic dusky sharks. Amendment 5b implements management measures that will reduce fishing mortality on dusky sharks to end overfishing and rebuild the dusky shark population. Effective January 1, 2018, management measures for recreational anglers would require permit holders fishing for sharks recreationally to obtain a shark endorsement, which requires completion of an online shark identification and fishing regulation training course, and require the use of circle hooks while shark fishing. Effective June 5, 2017, management measures for the commercial fishery would require pelagic longline fishermen to release all sharks not being retained using a dehooker or cutting the gangion less than three feet from the hook, completion of a shark identification and fishing regulation training course for pelagic longline, bottom longline, and shark gillnet vessel owners and operators and require the use of circle hooks by all directed shark permit holders using bottom longline (circle hook requirement effective January 1, 2018).

Bluefin Tuna

On March 29, the National Marine Fisheries Service closed the January sub-quota (January – March) of the Atlantic bluefin tuna General category fishery. Preliminary commercial landings from the General category winter fishery is 106.3 metric tons. The General category fishery reopens on June 1, 2017. The recreational bluefin tuna fishery remains open for Highly Migratory Species Angling category-permitted vessels and Charter/Headboat category-permitted vessels. The daily retention limit is the default limit of one bluefin tuna between 27 inches and 73 inches curved fork length.

NORTH CAROLINA DIVISION OF MARINE FISHERIES

Annual Fisheries Bulletin

2016 Commercial and Recreational Statistics

License and Statistics Section, PO Box 769, Morehead City, NC 28557 May 2017

The Annual Fisheries Bulletin contains the North Carolina commercial and recreational fisheries harvest statistics for 2016. Included in this bulletin are the 2016 landings and harvest information from the commercial and recreational fisheries programs, along with the 2012 to 2015 landings for comparison. The bulletin also contains a summary of commercial fishing trips by major gears.

The North Carolina Trip Ticket Program collects commercial fishery landings and effort statistics. This program mandates trip level fish dealer reporting of all finfish and shellfish landed in the state. Recreational fishery harvest and effort statistics are derived from the Marine Recreational Information Program (MRIP) that conducts recreational angler interviews at public access points and telephone/mail surveys.

Total Pounds Harvested in 2016

Commercial	Recreational
59,928,328 pounds	12,198,455 pounds

Top Five Species Caught in Each Fishery

Commercial	
Species	**Pounds**
Blue Crabs, Hard	24,728,819
Shrimp (Heads On)	13,191,155
Dogfish, Spiny	2,271,201
Croaker, Atlantic	2,092,135
Flounder, Summer	2,066,026

Recreational	
Species	**Pounds**
Dolphin	3,157,964
Bluefish	769,262
Tuna, Yellowfin	723,127
Cobia	675,859
Wahoo	534,787

Issued by the North Carolina Division of Marine Fisheries, Department of Environmental Quality.

For additional information regarding Commercial and Recreational Statistics, please contact:

Alan Bianchi, Commercial Statistics
(252) 726-7021 or (800) 682-2632
alan.bianchi@ncdenr.gov

Chris Wilson, Recreational Statistics
(252) 948-3876 or (800) 338-7804
chris.wilson@ncdenr.gov

2016 North Carolina Commercial Landings 2016

Issued: May 2017

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	132,496	$147,331
Anglerfish (Monkfish Including Monklivers)	50,841	$47,141
Bluefish	1,147,876	$599,788
Bonito	14,838	$26,780
Butterfish	63,542	$31,387
Carp	27,688	$3,453
Catfishes	992,192	$238,684
Cobia	48,244	$107,952
Croaker, Atlantic	2,092,135	$2,216,106
Cutlassfish, Atlantic	56,723	$103,316
Dogfish, Smooth	178,574	$73,183
Dogfish, Spiny	2,271,201	$235,069
Dolphinfish	356,053	$1,271,271
Drum, Black	89,886	$82,084
Drum, Red	76,977	$202,680
Eel, American	41,678	$92,011
Flounder, Southern	896,075	$3,603,688
Flounder, Summer	2,066,026	$8,218,728
Flounders, Other	1,209	$3,478
Garfish	16,424	$4,982
Grouper, Gag	114,902	$511,245
Grouper, Red	21,011	$84,600
Grouper, Scamp	41,056	$190,160
Grouper, Snowy	70,403	$282,182
Groupers, Other	10,357	$41,102
Grunts	39,843	$42,179
Hakes	3,124	$2,232
Harvestfish (Starbutters)	123,266	$211,512
Herring, River (Alewife and Blueback)	0	$0
Hogfish (Hog Snapper)	9,195	$39,452
Jacks (Crevalle and Blue runner)	9,455	$5,924
Mackerel, Atlantic (Boston)	663	$305
Mackerel, King	420,088	$868,542
Mackerel, Spanish	601,515	$1,068,081
Menhaden, Atlantic	397,725	$75,167
Mullet, Sea (Kingfishes)	831,974	$1,004,314
Mullet, Striped	964,186	$669,188
Perch, White	242,041	$166,839
Perch, Yellow	29,376	$41,564
Pigfish	15,331	$7,556
Pinfish	404	$138
Pompano	18,594	$44,075
Porgies	45,918	$80,872
Pufferfish	4,567	$2,109
Sharks[2]	951,934	$403,962
Scup	111,908	$72,871
Sea Basses	421,220	$1,337,333

2016 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Seatrout, Spotted	253,965	$661,047
Shad, American	63,286	$89,335
Shad, Gizzard	173,105	$30,293
Shad, Hickory	96,543	$29,418
Sheepshead	93,486	$116,477
Skates	25,488	$4,905
Skippers	12,861	$4,030
Snapper, Red[3]	0	$0
Snapper, Vermilion (Beeliner)	266,150	$909,274
Snappers, Other	9,278	$32,681
Spadefish	15,231	$9,189
Spot	235,670	$295,019
Striped Bass	146,153	$432,030
Swordfish	445,415	$1,202,276
Tilefish	111,788	$395,813
Triggerfish	131,626	$345,575
Tuna, Bigeye	287,442	$1,037,207
Tuna, Bluefin	156,198	$517,114
Tuna, Yellowfin	668,360	$1,410,177
Tunas, Other	102,854	$119,272
Tunny, Little (False Albacore)	233,501	$110,271
Unclassified Fish for Bait	43,143	$30,344
Unclassified Fish for Food	97,325	$108,618
Wahoo	25,307	$93,707
Weakfish (Grey Trout)	79,640	$120,548
TOTAL FINFISH	19,894,546	$32,667,230
SHELLFISH		
Blue Crabs, Hard	24,728,819	$20,734,724
Blue Crabs, Peeler	445,844	$1,314,879
Blue Crabs, Soft	284,769	$2,063,004
Clams, Hard (Meats)	331,508 *(17,399,081 numbers)*	$2,580,262
Oysters (Meats)	653,863 *(123,604 bushels)*	$4,045,357
Octopus	230	$477
Scallop,Sea (Meats)	171,159	$1,995,270
Shrimp (Heads On)[4]	13,191,155	$28,241,277
Squid	45,784	$40,632
Stone Crabs	7,906	$21,587
Unclassified Shellfish	96,496	$88,536
Whelks/Conchs (Meats)	76,249	$191,124
TOTAL SHELLFISH	40,033,781	$61,347,353
GRAND TOTAL	59,928,328	$94,014,583

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish.)
[2] Includes shark fins and the following sharks: blacknose, blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose.
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, white and rock shrimp.
* Units and value not shown to avoid disclosure of private enterprise.

2015 North Carolina Commercial Landings 2015

Updated: April 2017

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	146,498	$161,768
Anglerfish (Monkfish Including Monklivers)	112,863	$106,081
Bluefish	804,336	$445,293
Bonito	20,989	$32,905
Butterfish	62,658	$28,237
Carp	37,791	$3,071
Catfishes	917,965	$262,840
Cobia	52,684	$113,176
Croaker, Atlantic	1,819,070	$1,646,377
Cutlassfish, Atlantic	178,077	$309,752
Dogfish, Smooth	268,429	$98,113
Dogfish, Spiny	4,247,213	$532,180
Dolphinfish	320,961	$973,324
Drum, Black	51,103	$43,158
Drum, Red	80,393	$196,144
Eel, American	57,791	$142,826
Flounder, Southern	1,202,930	$3,823,707
Flounder, Summer	2,878,753	$9,092,527
Flounders, Other	7,638	$26,179
Garfish	37,651	$5,648
Grouper, Gag	127,194	$580,929
Grouper, Red	35,258	$138,669
Grouper, Scamp	36,391	$161,478
Grouper, Snowy	47,121	$184,206
Groupers, Other	15,234	$57,065
Grunts	32,684	$33,221
Hakes	1,407	$685
Harvestfish (Starbutters)	164,046	$221,595
Herring, River (Alewife and Blueback)	0	$0
Hogfish (Hog Snapper)	8,238	$33,500
Jacks (Crevalle and Blue runner)	7,607	$4,692
Mackerel, Atlantic (Boston)	1,861	$796
Mackerel, King	391,315	$800,688
Mackerel, Spanish	561,409	$1,034,231
Menhaden, Atlantic	896,919	$152,241
Mullet, Sea (Kingfishes)	786,515	$860,461
Mullet, Striped	1,247,044	$804,675
Perch, White	161,596	$124,499
Perch, Yellow	41,655	$54,013
Pigfish	20,763	$7,507
Pinfish	845	$304
Pompano	22,085	$39,973
Porgies	54,464	$92,779
Pufferfish	9,578	$5,861
Sharks[2]	795,831	$338,283
Scup	229,696	$130,029
Sea Basses	467,953	$1,366,822

2015 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Seatrout, Spotted	128,762	$781,211
Shad, American	98,118	$22,778
Shad, Gizzard	97,970	$8,176
Shad, Hickory	148,714	$322,198
Sheepshead	124,836	$450,208
Skates	44,848	$1,277,355
Skippers	16,736	$135,228
Snapper, Red[3]	0	$331,805
Snapper, Vermilion (Beeliner)	225,481	$1,277,767
Snappers, Other	6,552	$200,380
Spadefish	15,994	$1,191,039
Spot	377,358	$128,529
Striped Bass	141,824	$85,437
Swordfish	593,258	$8,066
Tilefish	45,354	$108,871
Triggerfish	131,536	$65,475
Tuna, Bigeye	369,347	$115,834
Tuna, Bluefin	118,159	$781,211
Tuna, Yellowfin	515,014	$22,778
Tunas, Other	152,716	$8,176
Tunny, Little (False Albacore)	164,853	$322,198
Unclassified Fish for Bait	67,995	$450,208
Unclassified Fish for Food	138,824	$1,277,355
Wahoo	18,380	$135,228
Weakfish (Grey Trout)	80,235	$331,805
TOTAL FINFISH	23,293,365	$32,394,870
SHELLFISH		
Blue Crabs, Hard	31,047,438	$29,633,881
Blue Crabs, Peeler	706,688	$2,106,196
Blue Crabs, Soft	380,375	$2,247,306
Clams, Hard (Meats)	415,027 *(21,126,582 numbers)*	$5,038,973
Oysters (Meats)	631,061 *(119,293 bushels)*	$3,898,159
Octopus	209	$388
Scallop, Sea (Meats)	198,393	$2,213,074
Shrimp (Heads On)[4]	9,097,660	$16,835,205
Squid	25,516	$22,212
Stone Crabs	8,158	$22,925
Unclassified Shellfish	85,071	$168,487
Whelks/Conchs (Meats)	65,221	$137,526
TOTAL SHELLFISH	42,660,817	$62,324,331
GRAND TOTAL	65,954,182	$94,719,201

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish.)
[2] Includes shark fins and the following sharks: blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose.
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, white and rock shrimp.
* Units and value not shown to avoid disclosure of private enterprise.

2014 North Carolina Commercial Landings 2014

Updated: April 2017

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	193,001	$197,434
Anglerfish (Monkfish Including Monklivers)	76,392	$66,713
Bluefish	2,019,279	$1,230,021
Bonito	9,081	$16,173
Butterfish	53,607	$30,593
Carp	16,456	$1,504
Catfishes	521,540	$112,361
Cobia	41,798	$85,596
Croaker, Atlantic	2,629,908	$1,813,374
Cutlassfish, Atlantic	165,375	$230,796
Dogfish, Smooth	498,904	$202,433
Dogfish, Spiny	5,650,285	$564,931
Dolphinfish	422,496	$1,271,440
Drum, Black	51,217	$32,387
Drum, Red	90,647	$174,745
Eel, American	60,755	$164,797
Flounder, Southern	1,673,511	$4,298,815
Flounder, Summer	2,911,750	$7,448,744
Flounders, Other	4,413	$3,418
Garfish	10,803	$2,215
Grouper, Gag	168,036	$706,884
Grouper, Red	53,096	$191,399
Grouper, Scamp	42,207	$178,032
Grouper, Snowy	27,553	$98,764
Groupers, Other	9,125	$30,086
Grunts	39,312	$41,387
Hakes	652	$242
Harvestfish (Starbutters)	155,357	$180,942
Herring, River (Alewife and Blueback)	1,139	$1,519
Hogfish (Hog Snapper)	9,767	$38,135
Jacks (Crevalle and Blue runner)	9,151	$6,274
Mackerel, Atlantic (Boston)	1,761	$693
Mackerel, King	549,981	$1,420,312
Mackerel, Spanish	673,974	$1,099,165
Menhaden, Atlantic	917,375	$128,194
Mullet, Sea (Kingfishes)	955,071	$1,067,141
Mullet, Striped	1,828,351	$1,714,630
Perch, White	172,486	$158,398
Perch, Yellow	67,454	$86,598
Pigfish	38,572	$17,565
Pinfish	1,431	$431
Pompano	12,923	$32,991
Porgies	82,809	$128,480
Pufferfish	1,611	$792
Sharks[2]	1,005,858	$513,513
Scup	160,508	$95,727
Sea Basses	529,075	$1,414,721

2014 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Seatrout, Spotted	242,245	$527,514
Shad, American	193,130	$230,091
Shad, Gizzard	114,594	$5,730
Shad, Hickory	109,407	$44,885
Sheepshead	173,376	$153,529
Skates	18,907	$122
Skippers	19,884	$5,862
Snapper, Red[3]	4,826	$21,634
Snapper, Vermilion (Beeliner)	242,259	$809,261
Snappers, Other	4,002	$11,715
Spadefish	22,761	$10,222
Spot	766,224	$687,618
Striped Bass	96,233	$297,585
Swordfish	694,911	$1,897,857
Tilefish	91,074	$212,222
Triggerfish	116,782	$251,194
Tuna, Bigeye	337,269	$1,351,096
Tuna, Bluefin	114,037	$658,404
Tuna, Yellowfin	821,520	$1,883,509
Tunas, Other	155,033	$180,868
Tunny, Little (False Albacore)	225,797	$135,287
Unclassified Fish for Bait	24,635	$2,591
Unclassified Fish for Food	123,386	$107,347
Wahoo	22,783	$73,317
Weakfish (Grey Trout)	105,246	$131,772
TOTAL FINFISH	29,456,169	$36,992,735
SHELLFISH		
Blue Crabs, Hard	25,242,648	$26,465,523
Blue Crabs, Peeler	621,040	$1,449,542
Blue Crabs, Soft	367,277	$2,091,382
Clams, Hard (Meats)	430,816	$2,295,366
	(22,440,617 numbers)	
Oysters (Meats)	727,775	$3,353,126
	(137,576 bushels)	
Octopus	217	$2,069
Scallop, Sea (Meats)	92,976	$402,717
Shrimp (Heads On)[4]	4,691,067	$12,947,004
Squid	16,156	$10,703
Stone Crabs	7,451	$18,479
Unclassified Shellfish	258,093	$124,799
Whelks/Conchs (Meats)	53,546	$123,236
TOTAL SHELLFISH	32,509,063	$52,862,816
GRAND TOTAL	61,965,232	$89,855,552

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish.)
[2] Includes shark fins and the following sharks: blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose.
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, white and rock shrimp.
* Units and value not shown to avoid disclosure of private enterprise.

2013 North Carolina Commercial Landings 2013

Updated: April 2017

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	90,180	$90,035
Anglerfish (Monkfish Including Monklivers)	10,566	$9,053
Bluefish	1,159,580	$564,377
Bonito	10,506	$15,460
Butterfish	93,146	$53,369
Carp	14,133	$1,360
Catfishes	548,913	$92,497
Cobia	35,456	$73,142
Croaker, Atlantic	1,927,938	$1,723,578
Cutlassfish, Atlantic	145,362	$204,869
Dogfish, Smooth	783,053	$344,182
Dogfish, Spiny	3,010,958	$302,248
Dolphinfish	178,035	$529,916
Drum, Black	127,170	$79,480
Drum, Red	371,949	$715,685
Eel, American	33,980	$88,649
Flounder, Southern	2,186,391	$5,673,190
Flounder, Summer	541,542	$1,386,338
Flounders, Other	*	*
Garfish	5,893	$1,208
Grouper, Gag	167,334	$704,382
Grouper, Red	72,034	$259,053
Grouper, Scamp	42,711	$180,679
Grouper, Snowy	20,274	$72,067
Groupers, Other	8,856	$31,637
Grunts	44,702	$47,062
Hakes	614	$231
Harvestfish (Starbutters)	221,168	$253,604
Herring, River (Alewife and Blueback)	743	$743
Hogfish (Hog Snapper)	7,847	$30,640
Jacks (Crevalle and Blue runner)	14,492	$10,639
Mackerel, Atlantic (Boston)	154	$61
Mackerel, King	345,177	$877,497
Mackerel, Spanish	620,752	$1,015,965
Menhaden, Atlantic	454,172	$73,490
Mullet, Sea (Kingfishes)	603,186	$668,480
Mullet, Striped	1,549,157	$1,402,914
Perch, White	275,652	$255,633
Perch, Yellow	31,481	$40,546
Pigfish	62,099	$28,093
Pinfish	1,536	$463
Pompano	15,423	$41,351
Porgies	72,669	$116,776
Pufferfish	5,846	$2,858
Sharks[2]	553,665	$282,318
Scup	28,691	$13,323
Sea Basses	329,691	$868,811

2013 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Seatrout, Spotted	367,610	$818,078
Shad, American	257,869	$307,475
Shad, Gizzard	112,295	$4,492
Shad, Hickory	71,326	$29,144
Sheepshead	180,225	$145,794
Skates	2,286	$429
Skippers	15,780	$4,652
Snapper, Red[3]	2,686	$11,942
Snapper, Vermilion (Beeliner)	267,260	$886,596
Snappers, Other	6,587	$19,449
Spadefish	20,369	$9,246
Spot	768,592	$690,035
Striped Bass	96,935	$303,486
Swordfish	1,058,089	$2,935,940
Tilefish	217,079	$522,652
Triggerfish	160,861	$342,228
Tuna, Bigeye	243,637	$939,909
Tuna, Bluefin	106,197	$608,952
Tuna, Yellowfin	648,039	$1,434,318
Tunas, Other	96,937	$113,429
Tunny, Little (False Albacore)	189,746	$114,416
Unclassified Fish for Bait	24,389	$2,565
Unclassified Fish for Food	119,847	$120,455
Wahoo	23,380	$75,577
Weakfish (Grey Trout)	120,188	$150,725
TOTAL FINFISH	22,003,151	$29,820,232
SHELLFISH		
Blue Crabs, Hard	21,438,077	$26,465,523
Blue Crabs, Peeler	447,120	$1,449,542
Blue Crabs, Soft	317,426	$2,091,382
Clams, Hard (Meats)	347,073	$2,295,366
	(17,855,759 numbers)	
Oysters (Meats)	586,625	$3,353,126
	(110,893 bushels)	
Octopus	1,205	$2,069
Scallop, Sea (Meats)	36,445	$402,717
Shrimp (Heads On)[4]	4,859,833	$12,947,004
Squid	12,090	$10,703
Stone Crabs	6,839	$18,479
Unclassified Shellfish	91,274	124,744
Whelks/Conchs (Meats)	50,079	$123,236
TOTAL SHELLFISH	28,194,084	$49,283,890
GRAND TOTAL	50,197,236	$79,104,122

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish.)
[2] Includes shark fins and the following sharks: blacktip, hammerhead, lemon, shortfin mako, thresher, and Atlantic sharpnose.
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, white and rock shrimp.

* Units and value not shown to avoid disclosure of private enterprise.

2012 North Carolina Commercial Landings 2012

Updated April 2017

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	124,325	$104,212
Anglerfish (Monkfish Including Monklivers)	21,649	$25,286
Bluefish	758,858	$349,288
Bonito	11,343	$15,833
Butterfish	127,536	$65,553
Carp	6,199	$586
Catfishes	489,492	$116,379
Cobia	31,972	$61,603
Croaker, Atlantic	3,106,616	$2,135,458
Cutlassfish, Atlantic	50,867	$61,601
Dogfish, Smooth	980,275	$379,946
Dogfish, Spiny	2,728,882	$640,820
Dolphinfish	249,020	$756,346
Drum, Black	94,352	$54,133
Drum, Red	66,519	$138,833
Eel, American	64,110	$160,275
Flounder, Southern	1,646,137	$4,451,482
Flounder, Summer	1,090,218	$2,969,370
Flounders, Other	0	0
Garfish	18,490	$2,339
Grouper, Gag	187,483	$758,371
Grouper, Red	111,781	$363,767
Grouper, Scamp	49,556	$195,370
Grouper, Snowy	25,740	$78,235
Groupers, Other	7,542	$26,152
Grunts	49,734	$50,044
Hakes	280	$100
Harvestfish (Starbutters)	161,751	$202,146
Herring, River (Alewife and Blueback)	678	$678
Hogfish (Hog Snapper)	8,256	$28,738
Jacks (Crevalle and Blue runner)	16,200	$13,414
Mackerel, Atlantic (Boston)	1,374	$567
Mackerel, King	297,423	$831,297
Mackerel, Spanish	916,439	$1,374,648
Menhaden, Atlantic	538,783	$82,974
Mullet, Sea (Kingfishes)	596,249	$645,607
Mullet, Striped	1,859,587	$1,041,659
Perch, White	189,448	$150,940
Perch, Yellow	20,511	$23,446
Pigfish	37,555	$19,834
Pinfish	1,017	$257
Pompano	22,525	$43,376
Porgies	83,918	$132,025
Pufferfish	5,531	$2,799
Sharks[2]	701,924	$376,171
Scup	3,954	$2,768
Sea Basses	256,007	$687,905

2012 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Seatrout, Spotted	265,016	$522,130
Shad, American	235,861	$257,748
Shad, Gizzard	123,813	$4,333
Shad, Hickory	65,645	$22,389
Sheepshead	109,881	$92,837
Skates	5,738	$1,433
Skippers	21,998	$5,804
Snapper, Red[3]	445	$1,898
Snapper, Vermilion (Beeliner)	276,172	$889,691
Snappers, Other	2,751	$8,036
Spadefish	24,238	$9,043
Spot	489,676	$465,750
Striped Bass	144,555	$368,516
Swordfish	903,178	$3,009,107
Tilefish	361,094	$753,966
Triggerfish	143,114	$278,968
Tuna, Bigeye	232,943	$1,036,747
Tuna, Bluefin	130,496	$1,017,958
Tuna, Yellowfin	855,006	$2,130,454
Tunas, Other	105,893	$123,039
Tunny, Little (False Albacore)	157,849	$89,798
Unclassified Fish for Bait	34,775	$7,615
Unclassified Fish for Food	111,190	$111,452
Wahoo	23,521	$73,998
Weakfish (Grey Trout)	91,383	$111,461
TOTAL FINFISH	22,734,334	$31,016,802
SHELLFISH		
Blue Crabs, Hard	25,991,387	$20,198,891
Blue Crabs, Peeler	468,855	$1,112,025
Blue Crabs, Soft	325,426	$1,496,021
Clams, Hard (Meats)	396,429	$2,091,067
	(20,074,457 numbers)	
Oysters (Meats)	440,063	$2,572,073
	(83,188 bushels)	
Octopus	248	$382
Scallop, Sea (Meats)	58,882	$567,230
Shrimp (Heads On)[4]	6,141,480	$13,333,150
Squid	11,921	$10,885
Stone Crabs	5,221	$17,125
Unclassified Shellfish	77,610	$79,764
Whelks/Conchs (Meats)	39,078	$75,705
TOTAL SHELLFISH	33,956,601	$41,554,318
GRAND TOTAL	56,690,935	72,571,121

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish.)

[2] Includes shark fins and the following sharks: blacktip, bull, hammerhead, shortfin mako, sandbar, thresher, tiger, and Atlantic sharpnose.

[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.

[4] Includes brown, pink, white and rock shrimp.

* Units and value not shown to avoid disclosure of private enterprise.

North Carolina Commercial Fishing Trips by Major Gears

(2012 – 2016)

	Trips				
Gear	**2012**	**2013**	**2014**	**2015**	**2016**
Beach Seine	68	57	21	23	11
By Hand	15,188	16,446	18,019	17,170	18,790
Cast Net	804	703	627	690	666
Channel Net	1,508	1,626	1,078	968	759
Clam Dredges	492	344	388	251	213
Clam Trawl Kicking	188	180	155	77	39
Crab Dredge	4	1	3	14	6
Crab Pot	48,043	48,122	50,527	51,758	46,273
Crab Trawl	21	85	180	470	461
Eel Pot	177	70	143	97	66
Fish Pot	613	623	678	583	471
Flounder Trawl	108	71	257	276	265
Flynet	14	4	40	11	19
Fyke Net	344	428	404	639	627
Gigs	3,148	2,585	2,804	2,739	2,795
Gill Net – Anchored	31,204	36,711	27,862	23,437	22,730
Gill Net – Drift	392	236	296	401	278
Gill Net – Runaround	3,589	3,780	3,377	3,252	3,293
Haul Seines[1]	177	273	204	45	93
Longlines	578	719	634	519	598
Oyster Dredge	2,264	3,763	5,705	4,031	2,684
Peeler Pot	3,516	3,334	4,006	4,743	4,957
Peeler Trawl[2]	24	29	26	21	14
Pound Nets	2,740	2,859	2,444	2,856	2,557
Rakes	9,403	9,988	11,779	12,489	11,227
Rod-n-Reel	2,151	2,065	2,271	1,991	2,278
Shrimp Trawl	6,195	5,650	4,598	6,053	7,467
Skimmer Trawl	1,088	1,194	712	1,035	1,273
Spears (Diving)	134	159	195	168	186
Tongs	5,527	4,092	3,896	3,688	3,152
Trolling	1,888	2,184	2,245	1,903	1,808
Trotline	50	38	49	39	86
Other Gears[3]	94	238	169	164	172
Total trips [4]	141,734	148,657	145,792	142,601	136,314

A **trip** is defined as the time period beginning when a vessel or fisherman leaves port to conduct fishing activities and ending when that vessel or fisherman returns to land the catch. The duration of a trip can vary from a few hours, as in hand clamming, to several days, as in ocean flounder trawling. An assessment of the number of trips gives an indication of the amount of effort conducted by commercial fishermen within that fishery.

[1] Includes long hauls, common seines, and swipe nets.
[2] A new code to distinguish peeler trawl gear was put into effect in 2010.
[3] Includes greenstick trolling, butterfly nets, conch pots, dip nets, purse seines, bay scallop dredges, scallop scoops and trawls, shrimp pots and turtle pots.
[4] Total trips are not equal to the sum of trips by gear due to multi-gear trips.

Source: North Carolina Division of Marine Fisheries Trip Ticket Program (April 2017).

North Carolina Marine Recreational Finfish Harvest

(2015 – 2016)

SPECIES	NUMBER 2015	NUMBER 2016	POUNDS 2015	POUNDS 2016
Amberjacks	9,934	10,083	244,797	188,141
Barracudas	2,065	965	17,394	8,603
Bluefish	977,599	1,159,528	868,867	862,558
Bonito	5,619	1,590	37,263	9,998
Cobia	16,166	9,288	695,842	293,544
Croaker, Atlantic	471,869	367,237	190,808	133,603
Dolphin	434,454	263,278	3,170,590	2,757,490
Drum, Red	36,704	61,774	154,496	229,248
Drum, Black	35,529	71,174	115,609	240,156
Flounder, Southern	108,369	117,178	254,132	272,763
Flounder, Summer	40,561	17,783	64,065	30,100
Groupers	1,776	2,609	21,125	36,829
Grunts	24,278	20,862	32,120	31,832
Jacks	20,635	45,946	27,254	35,223
Kingfishes	1,556,068	816,174	493,506	247,436
Mackerel, King	34,330	54,501	320,388	458,975
Mackerel, Spanish	388,157	423,141	431,082	408,312
Perch, Silver	4,849	13,529	1,161	2,556
Pigfish	508,767	462,798	177,093	154,517
Pinfish	333,330	341,827	115,132	64,778
Pompano	142,927	59,592	64,763	41,332
Porgies	7,020	3,997	9,421	8,171
Puffers	860,154	215,593	397,472	90,593
Sea Bass, Black	69,270	57,293	100,146	86,072
Seatrout, Spotted	87,396	386,021	148,926	688,682
Sharks	5,599	1,647	78,482	3,905
Sharks, Dogfish	9,101	3,159	45,596	12,083
Sheepshead	76,496	41,801	217,148	119,119
Snappers	12,965	36,908	15,147	48,348
Spot	1,081,083	510,794	395,268	148,883
Striped Bass[1]	0	375	0	1,407
Tuna, Bluefin[2]	44	74	7,747	13,576
Tuna, Yellowfin	24,459	60,134	723,874	2,264,871
Wahoo	19,561	23,809	584,670	640,807
Weakfish	39,842	33,468	50,903	34,708

[1] Striped Bass landings reflect Atlantic Ocean catches only.

[2] Landings for Atlantic Bluefin Tuna (ABT) reflect the Highly Migratory Species fishing year (January 1 through December 31).

NOTE: The number and pounds of finfish listed represent estimated harvest; finfish released alive are not included. Headboat landings are not included but are available upon request from NOAA Beaufort Lab's Southeast Region Headboat Survey.

North Carolina Marine Recreational Finfish Harvest

(2012 – 2014)

SPECIES	NUMBER 2012	NUMBER 2013	NUMBER 2014	POUNDS 2012	POUNDS 2013	POUNDS 2014
Amberjacks	8,976	10,078	3,098	154,734	172,647	60,260
Barracudas	683	224	852	8,535	1,276	10,737
Bluefish	888,888	1,183,627	1,084,292	1,010,575	988,664	966,003
Bonito	4,281	9,219	6,700	38,551	133,163	30,988
Cobia	2,050	19,224	9,804	104,106	506,067	247,386
Croaker, Atlantic	288,813	411,882	541,657	105,530	141,880	227,949
Dolphin	327,116	212,388	185,077	2,559,382	1,562,755	1,329,353
Drum, Red	52,948	164,218	116,601	238,312	676,050	596,447
Drum, Black	139,363	363,466	24,058	243,965	713,047	60,406
Flounder, Southern	118,614	178,178	69,956	298,043	409,086	149,723
Flounder, Summer	63,135	44,941	45,708	101,642	70,874	67,791
Groupers	10,198	5,390	1,729	126,567	54,418	18,973
Grunts	62,734	16,374	26,257	95,724	26,769	39,265
Jacks	19,239	25,164	8,871	20,463	24,835	28,167
Kingfishes	1,050,826	1,377,835	1,143,212	383,427	343,454	451,073
Mackerel, King	27,353	22,613	23,374	333,614	235,436	366,128
Mackerel, Spanish	491,238	497,329	398,398	665,201	625,035	449,709
Perch, Silver	22,053	13,345	11,519	3,988	2,366	2,519
Pigfish	334,052	299,065	293,523	117,021	101,014	83,741
Pinfish	259,674	355,871	332,185	40,471	61,148	74,085
Pompano	107,260	471,156	166,888	57,882	171,860	83,190
Porgies	15,857	8,460	7,812	26,249	16,720	15,657
Puffers	268,515	209,770	49,269	134,113	126,039	25,416
Sea Bass, Black	75,638	49,258	74,648	127,621	68,225	132,351
Seatrout, Spotted	500,522	369,265	234,045	817,551	649,158	433,978
Sharks	2,350	13,426	3,340	44,170	20,386	23,102
Sharks, Dogfish	316	4,986	853	1,454	10,143	4,296
Sheepshead	119,899	273,211	61,379	293,570	500,096	143,782
Snappers	27,822	9,852	9,110	60,163	14,013	15,017
Spot	784,272	1,464,592	2,111,880	230,250	460,928	704,445
Striped bass[1]	0	0	0	0	0	0
Tuna, Bluefin[2]	189	201	69	31,861	40,979	14,492
Tuna, Yellowfin	57,100	44,688	27,248	1,579,260	1,441,122	873,536
Wahoo	30,885	9,370	11,639	854,568	255,306	322,468
Weakfish	40,299	33,851	26,308	46,081	34,731	25,957

[1] Striped bass landings reflect Atlantic Ocean catches only.

[2] Landings for Atlantic Bluefin Tuna represent Highly Migratory Species fishing year January 1 through December 31.

NOTE: The number and pounds of finfish listed represent estimated harvest; finfish released alive are not included. Headboat landings are not included but are available upon request from NOAA Beaufort Lab's Southeast Region Headboat Survey.

North Carolina Coastal Angling Program

North Carolina Marine Recreational Finfish Harvest and Release Catch Estimates, 2012 – 2016.

Year	Number Harvested	Pounds Harvested	Number Released
2012	8,472,954	12,059,556	18,536,492
2013	11,479,525	11,968,710	20,963,650
2014	9,572,612	8,788,702	19,765,129
2015	10,363,367	11,917,061	21,137,129
2016	8,494,662	12,198,455	21,444,250

North Carolina Marine Recreational Fishing Trip Estimates (number), 2012 – 2016.

Year	Beach/Bank	Charter Boat	Manmade	Private Boat	Total
2012	1,599,759	160,097	1,482,635	2,060,989	5,303,480
2013	1,212,558	111,366	1,543,314	2,100,515	4,967,753
2014	1,665,273	96,620	1,484,850	1,707,330	4,954,073
2015	1,205,413	114,061	1,285,166	2,041,020	4,645,660
2016	2,018,682	143,644	1,461,579	1,774,666	5,398,571

Coastal Recreational Fishing License (CRFL) Sales by Residency, 2012 – 2016.

Year	In State	Out-of-State	Total
2012	304,840	155,457	460,297
2013	317,649	162,351	480,000
2014	320,663	165,624	486,287
2015	316,376	164,469	480,845
2016	308,883	158,826	467,709

Survey Methods

The survey consists of telephone/mail and on-site angler interviews. Telephone/mail interviews are used to collect data on number of trips, fishing location, and when these trips were made. Information on actual catch (species, number, weight, and length) is collected through on-site angler interviews. Information from both types of interviews is combined to produce estimates of total number and pounds of finfish caught.

Precision of Estimates

Numbers and pounds presented are estimates, not actual counts, therefore having varying levels of precision.

Coastal recreational fishery statistics are provided through participation in the Marine Recreational Information Program. In North Carolina, this project is supported in part by the U.S. Fish and Wildlife Service through the Sport Fish Restoration Program, Grant F-31.

NORTH CAROLINA DIVISION OF MARINE FISHERIES

Fish Dealer Report

License & Statistics Section, PO Box 769, Morehead City, NC 28557 May 2017

2016 COMMERCIAL LANDINGS REVIEW

Based on data collected through the North Carolina Division of Marine Fisheries Trip Ticket Program, 60 million pounds of finfish and shellfish were landed in 2016, with an estimated dockside value of $94 million dollars. This represents a 9.1 percent decrease in landings when compared to 2015 and a 1 percent decrease in value. The 2016 landings are higher than the five-year average of 59 million pounds, and the five-year average value of $86 million dollars.

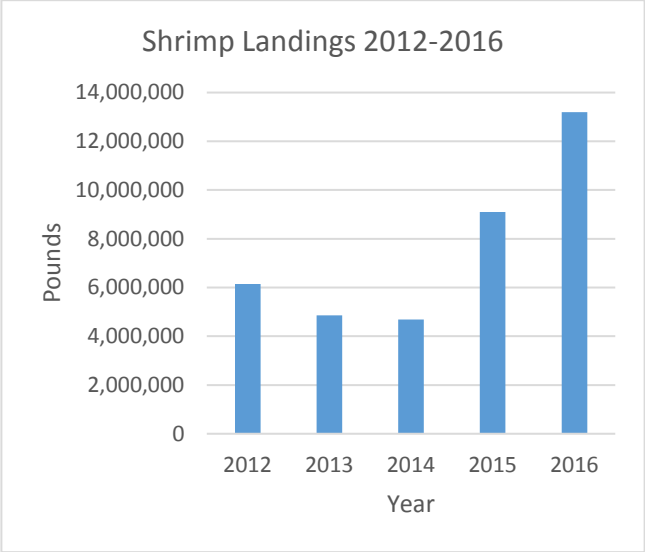
Thirty-four counties reported landings to the Division of Marine Fisheries Trip Ticket Program in 2016. Dare County had the largest landings, with 16.1 million pounds, followed by Carteret with 8 million, Hyde with 7.9 million, Tyrrell with 4.7 million, and Pamlico with 4.4 million pounds. These five counties accounted for 68.5 percent of the statewide landings, where the remaining 29 accounted for 31.5 percent.

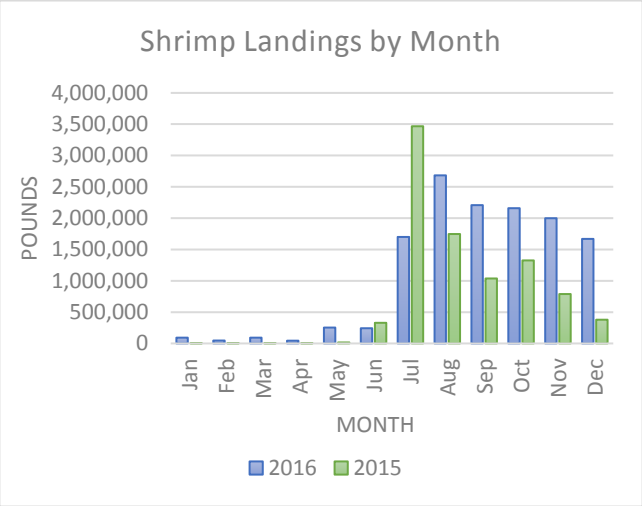
The top five species landed were hard blue crabs (24.7 million pounds), followed by shrimp (13.2 million pounds), spiny dogfish (2.3 million pounds), Atlantic croaker (2.1 million pounds), and summer flounder (2.1 million pounds)

The top five species with landings increases from 2015 to 2016 were tilefish (146 percent), spotted seatrout (97 percent), squid (79 percent), black drum (76 percent), and shrimp (45 percent).

The increase in shrimp landings was aided by a warm fall, which contributed to increased landings well into December. In December 2015, dealers purchased 378,829 pounds of shrimp. By

comparison, in December 2016, dealers purchased 1.7 million pounds. The increase in annual shrimp landings was accompanied by an 18.7 percent increase in overall trips in 2016. Landings from state ocean waters north of Cape Hatteras greatly increased in 2016- 10,993 percent over the previous year. Reports from dealers indicated an abundance of shrimp in northern, nearshore waters, in an area normally avoided by fishermen.





Oysters also saw changes in 2016, with the overall landings increasing 3.6 percent. The higher landings came from a 99.6 percent jump in lease production. Public bottom landings dropped by 25.3 percent. Hurricane Matthew most likely contributed to the poor water quality and closures in the fall that impacted oyster landings from public bottom.

Blue crabs also saw a significant change from last year. Landings of all three blue crab stages decreased. Hard blue crabs, soft blue crabs and peeler blue crabs experienced a 20.4 percent, 25.1 percent and 36.9 percent decrease, respectively. Like the oyster landings, blue crab landings were negatively affected by poor water quality following Hurricane Matthew.

DEALER SURVEY RESULTS

The North Carolina Division of Marine Fisheries Trip Ticket Program conducts a survey of fish dealers every two years to obtain input on various aspects of the program. In January 2017, the survey was sent out to every licensed fish dealer in the state. The survey was designed to gauge customer satisfaction, inquire about the dealer's ability to provide information on personal consumption by fishermen, and to give them the opportunity to relay comments back to the Division of Marine Fisheries. A total dealer count was calculated to be 641 at the time of mailout on Jan. 20. As of April 7, 201 surveys had been returned, representing a response rate of 31 percent, which is 43 percent over the 2014 survey response rate and 31 percent over the past five surveys. The survey responses are anonymous and dealers identified themselves only if they chose to. Some notable highlights are listed below.

The survey results indicate a continuing trend of dealer satisfaction with the Trip Ticket Program. Of the respondents, most agreed or strongly agreed that the Trip Ticket Program allows for easy and accurate data reporting, the program requirements are well explained, supplies are readily available and accessible, and that customer service is satisfactory. Of the dealers who completed the survey, 96 percent had a positive review of the customer service aspects of the Trip Ticket Program and 78 percent said they were satisfied with the service of their commercial port agent. Sixty-three percent had positive reviews of the quality of data collected by the Trip Ticket Program, where 29 percent had negative reviews, and 8 percent abstained from answering. The Trip Ticket Program will be sending out annual landings data, to those who indicated they wanted to see them on the survey, starting in May. and contacting various dealers who requested to the Trip Ticket Program extends a big thank you to all dealers who responded to the survey. The program relies on this feedback to guide future efforts.

RULE CHANGES

Several new rules will go into effect May 1, including six to implement amendments to the Oyster and Hard Clam fishery management plans. Of particular interest to dealers may be amendments to 15A NCAC 03K .0202 to reduce the culling tolerance for oysters from 10 percent to 5 percent for the possession of accumulated dead shell, oyster cultch material, a shell length less than that specified by proclamation, or in any combination for oysters possessed from public bottom.

Also, changes to 15A NCAC 03J .0104, 15A NCAC 03L .0102, 15A NCAC 03O .0501 and 15A NCAC 03O .0503 establish a Permit for Weekend Trawling for Live Shrimp. Permit conditions include headrope length, live tank and aeration requirements. Commercial fishermen who wish to participate in this weekend fishery may contact Michelle Hensley at 252-808-8076 or Michelle.Hensley@ncdenr.gov to receive a permit application package.

Another rule change to 15A NCAC 03O .0503 proposes to relocate the long-standing 2003 requirement for a permit for dealers transacting in spiny dogfish from proclamation into rule. Spiny dogfish are monitored under a quota and dealers are required to report daily landings during the open season. Placing the permit requirement in rule has no real impact on holders of the permit as the reporting requirements, application process, and cost of the permit will not change. Text of the rule changes will be posted on the Division website on May 1 in a rulebook supplement dated May 1, 2017. For more information on the rule changes, contact Catherine Blum at 252-808-8014 or Catherine.Blum@ncdenr.gov.

ESTUARINE GILL NET PERMIT

The Division of Marine Fisheries requires fishermen to obtain an Estuarine Gill Net Permit for any anchored small or large mesh fishing operation in internal coastal waters. The permit is a requirement of federal incidental take permits for sea turtles and Atlantic sturgeon. A condition of the incidental take permits is to maintain certain levels of observer coverage statewide. The Estuarine Gill Net Permit requires fishermen to provide an active phone number where they can be reached to schedule observer trips so that the division can maintain the observer coverage needed to stay in compliance with the incidental take permits. If the required coverage is not maintained, large and small mesh anchored gill nets could be prohibited in all Internal Coastal Waters. To date for fiscal year 2017, there have been 2,556 permits issued. Fishermen can obtain or renew their annual permit when they renew their license at division offices or via mail.

The License Program is now printing Estuarine Gill Net Permits on clean release cards instead of only providing the proof of purchase on standard size printer paper. These permits are now the same size as the Standard Commercial Fishing License and should make it easier for fishermen to keep the permit on them while fishing.

STAFF CHANGES

The Division of Marine Fisheries License and Statistics Section has undergone a few staffing changes in the past year that we wish to bring to your attention.

Adam Stemle is the new Division of Marine Fisheries economist. Adam joins us from the

University of Miami. Questions for Adam can be directed to:
Adam.Stemle@ncdenr.gov or 252-808-8107

Chris Kelly is the new port agent for the Northern District. Chris comes to the program after working for the division's gill net crew in Elizabeth City. Questions can be directed to:
Chris.Kelly@ncdenr.gov or 252-264-3911

Amanda Tong is the new data analyst in the Morehead City office. Amanda comes to us from the Department of Environmental Conservation for the state of New York, and will be handling data requests and data management. She can be reached at:
Amanda.Tong@ncdenr.gov or 252-808-8020

LICENSE SALES UPDATED

Below are sales as of April 21, by license type for the 2017 (July 1, 2016-June 30, 2017) license year. The values below include active licenses only. Totals do not include transfers, replacements, or voids.

Standard Commercial Fishing License	5,142
Retired Standard Commercial Fishing License	1,323
Commercial Fishing Vessel Registration	7,775
Land or Sell License	102
NC Resident Shellfish License Without SCFL	1,110
Fish Dealer License	713
Ocean Pier License	20
Recreational Fishing Tournament License	19
Recreational Commercial Gear License	1,927
Total Licenses for All License Types	18,131

*Data not finalized in time for printing

TECH TIPS

The following are tips designed to help electronic dealers enter data on their trip tickets faster and with less hassle.

Tab and Type
Push the mouse aside. Use the Tab key to take you from field to field. Located at the top of several drop-down lists is a blank space for the search and type-ahead feature.

Use enter key instead of mouse click
If a button that you need to click becomes highlighted with a dotted box just inside the button box (because you tabbed to it), hit the Enter key. Hitting Enter when the button is highlighted is the same as clicking on the button with the mouse.

New Ticket
If you are ready to enter another trip ticket, you do not have to leave the Trip Ticket screen. To bring up a new Trip Ticket screen, hold down the Ctrl button and hit the N key. This is a hot key sequence that can also be accessed from the Trip Ticket screen menu by clicking on the "New" menu item.

If you have any questions regarding use of the Trip Ticket software, please contact Grace Kemp at Grace.Kemp@ncdenr.gov or 252-808-8101

NC MARINE FISHERIES COMMISSION MEETING SCHEDULE FOR 2016

May 17-18: Bridgepointe Hotel and Marina, New Bern
August 16-17: Doubletree by Hilton - Raleigh Brownstone-University Hotel, Raleigh
November 15-16: Hilton Garden Inn, Kitty Hawk

***Listen to MFC Meetings live via online streaming. See division website for details: http://portal.ncdenr.org/web/mf/mfc-meetings**

The Division of Marine Fisheries is dedicated to ensuring sustainable marine and estuarine fisheries and habitats for the benefit and health of the people of North Carolina.